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**Note:** Throughout this publication, "you" refers to students newly admitted, readmitted or returning to McGill.
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1.2 General Policies and Information

Students must inform themselves of University rules and regulations and keep abreast of any changes that may occur. The General Policies and Information section of this publication contains important details required by students during their studies at McGill and should be periodically consulted, along with other sections and related publications.

1.2.1 Authorization, Acknowledgement and Consent

When applying for admission to the University, you are bound by and agree to observe all statutes, rules, regulations, and policies at McGill University and the faculty or faculties to which you may be accepted and registered in, including policies contained in the University Calendars and related fee documents. Your obligation as a student begins with your registration and ends in accordance with the University's statutes, rules, regulations, and policies.

You should verify all information or statements provided with your application. Incorrect or false information may jeopardize your admission. The University reserves the right to revoke an admission that is granted based on incorrect or false information in an application or supporting documents.

1.2.2 Student Rights and Responsibilities

Revision, June 2011. Start of revision.

The Handbook on Student Rights and Responsibilities is produced jointly by the Office of the Dean of Students and the University Secretariat. It contains regulations and policies governing your rights and responsibilities as a student at McGill, and is available to you electronically at www.mcgill.ca/secretariat/policies/students.

To find out more about this topic see: www.mcgill.ca/students/srr/.

Revision, June 2011. End of revision.

1.2.3 Language Policy

The main language of instruction at McGill is English. You have the right to write essays, examinations, and theses in English or in French except in courses where knowledge of a language is one of the objectives of the course.

Revision, June 2011. Start of revision.

If you need to improve your English skills, you should take an intensive course in English as a second language before or at the start of your studies. Information concerning second-language course offerings can be found through the School of Continuing Studies at www.mcgill.ca/conted/langprg and the French Language Centre at: www.mcgill.ca/flc, and in the Summer Studies and School of Continuing Studies publications. There are special language requirements for Faculty of Education students; see the Faculty of Education publication.

Note for Continuing Studies: For English Language programs, see School of Continuing Studies > Areas of Study > Languages > English Language Programs.

Revision, June 2011. End of revision.

Revision, August 2011. Start of revision.

Note for Law: Due to the bilingual nature of the Law program, examinations, term papers, and essays may be written in either English or French. Participation in Moot Courts may also be in either language. While examination questions are set in the language in which a course is given, they may contain materials in either English or French.

Note for Graduate and Postdoctoral Studies: You should refer to Graduate and Postdoctoral Studies General Information and Regulations > Registration > Courses Taken as Extra to a Program > Courses Taken as Extra to a Program.

Revision, August 2011. End of revision.

1.2.4 Academic Integrity

Before submitting work in your courses, you must understand the meaning and consequences of plagiarism and cheating, which are serious academic offences. Inform yourself about what might be considered plagiarism in an essay or term paper by consulting the course instructor to obtain appropriate referencing guidelines. You should also consult Fair Play, the student guide to academic integrity available at www.mcgill.ca/students/srr/honest. There you will also find links to instructional tutorials and strategies to prevent cheating. The Code of Student Conduct and Disciplinary Procedures includes sections on plagiarism and cheating. The possession or use of unauthorized materials in any test or examination constitutes cheating. You can find the Code in the Handbook on Student Rights and Responsibilities or at www.mcgill.ca/students/srr/publications.
Responses on multiple-choice exams are normally checked by the Exam Security Computer Monitoring program. The program detects pairs of students with unusually similar answer patterns on multiple-choice exams. Data generated by this program can be used as admissible evidence in an investigation of cheating under Article 16 of the Code of Student Conduct and Disciplinary Procedures.

The Office of the Dean of Students administers the academic integrity process as described in the Handbook on Student Rights and Responsibilities.

1.2.5 University Student Assessment Policy

Revision, August 2011. Start of revision.

The purpose of the University Student Assessment Policy is to bring together into a single document all the disparate policies with regard to all types of student assessments. This policy is meant to protect you from excessive workloads, and to ensure that all students are treated equally.

This policy applies to all undergraduate and graduate courses offered by the University that are evaluated by any form of assessment. Except where otherwise indicated, this policy applies to all faculties, including those which administer their own examinations.

You can consult the policy at www.mcgill.ca/secretariat/policies/students.

Revision, August 2011. End of revision.

1.2.6 Policy Concerning Access to Records

The University sends statements of account and all other correspondence directly to students. You retain full control over who has access to your records or accounts; however, officers and members of the University staff also have access to relevant parts of your records for recognized and legitimate use. The University does not send progress reports or any other information to your parents and/or sponsors unless you specifically request it in writing.

In accordance with Quebec’s Act Respecting Access to Documents held by Public Bodies and the Protection of Personal Information (the “Access Act”), personal information, including transcripts of academic records, may be released only with the student's authorization. When you apply to McGill, you authorize the University to release certain personal information (name, address, telephone number, email address, date of birth, program and student status) to specific persons and bodies.

The following persons and bodies are included in your information release authorization:

1. Libraries of other Quebec universities with which McGill has reciprocal borrowing agreements (ID number and bar code may also be disclosed to those libraries).
3. The appropriate authorities involved with the external or internal funding of your student fees (financial records may also be disclosed to those authorities).
5. The Association of Registrars of Universities and Colleges of Canada and the Conférence des recteurs et des principaux des universités du Québec or the member institutions of these organizations, for the purpose of admissions operations and the production of statistics.
6. The school(s) or college(s) that you attended.
7. Students and alumni who have volunteered to speak with admitted students.
8. Student Associations recognized by McGill University for the student category(ies) to which you belong.
10. Professional bodies or corporations (e.g., engineers, dentists).
11. McGill Network and Communications Services for the purposes of listing your McGill email address in an online email directory.

If you do not want to authorize the University to disclose personal information to the organizations mentioned above in 8, 9, 10 and 11, you must complete and submit an Opposition Form, available at Service Point (www.mcgill.ca/students/servicepoint).

1.2.7 Email Communication

All students are assigned a McGill Email Address (usually in the form of firstname.lastname@mcgill.ca) and are given a McGill email mailbox. You can view your McGill Email Address and set your McGill Password on Minerva (www.mcgill.ca/minerva), under the Personal Menu.

Email sent to your McGill Email Address is an official means of communication between McGill University and its students. As with all official University communications, it is your responsibility to ensure you read and act upon University emails in a timely fashion. If you choose to forward University email to another email mailbox, it is your responsibility to ensure that the alternate email mailbox is valid.

You should read and familiarize yourself with the Code of Conduct for Users of McGill Computing Facilities and Email Communications with Students policies found under Information Technology on the University Secretariat website at www.mcgill.ca/secretariat/policies/informationtechnology. For more information on email for students, refer to www.mcgill.ca/it and see section 1.18: For your Information Technology (IT) needs.

Revision, June 2011. Start of revision.

Note for Continuing Studies: The above services are not available if you are registered in short courses or seminars not recorded on the official McGill transcript.
Revision, June 2011. End of Revision.

1.2.8 Responsible Use of McGill Information Technology Resources

You must comply with the Policy on the Responsible Use of McGill Information Technology Resources as approved by the University Senate. You can find this policy in the listing of University Policies, Procedures and Guidelines under Information Technology, at www.mcgill.ca/secretariat/policies/informationtechnology.

1.2.9 Non-smoking Policy

Quebec law prohibits smoking in public buildings. For more information, see www.mcgill.ca/adminhandbook/policies/smoking.

1.2.10 Health Professions - Immunization Requirement

A compulsory immunization program exists at McGill for students in the health professions (including Dietetics), as well as the School of Social Work. If you are a new student in those programs, you must complete the immunization program well before classes begin. You can find further information at www.mcgill.ca/studenthealth/forms or by calling the Student Health Service at 514-398-6017.

1.2.11 Health Insurance – International Students

By Senate regulation, all international students (full-time, part-time, half-time, additional session, Special, Exchange and Visiting) and their accompanying dependants must participate in the University's compulsory International Student Health Insurance Plan. The University and the Quebec Ministry of Education require a copy of your proof of health insurance on file. You must pick up an International Health Insurance card from Service Point upon your arrival at McGill University.

Students who meet certain criteria may be eligible for an exemption. If you believe you are eligible, you must submit an online exemption request on Minerva and present valid documentation proving eligibility to Service Point before the deadline.

Service Point
3415 McTavish Street
Montreal, Quebec, H3A 1Y1


All inquiries related to this University policy must be directed to International Student Services:

International Health Insurance
Telephone: 514-398-6012
Email: international.health@mcgill.ca
Website: www.mcgill.ca/internationalstudents/health

Revision, June 2011. Start of Revision.

Note for Continuing Studies: If you are registered in the Intensive English and/or the Intensive French programs, you should contact the Client Services Office, School of Continuing Studies, 514-398-6200 for information on health insurance.

Revision, June 2011. End of Revision.

1.2.12 Health Insurance – Canadian Residents

If you are a Canadian student from outside Quebec, you should check with your provincial medicare office to ensure that you have valid health coverage while studying at McGill.

If you are a Canadian student who has been living abroad, you may not be eligible for provincial health insurance coverage. To ensure adequate health insurance coverage, you may enrol in the group plan offered through International Student Services (www.mcgill.ca/internationalstudents). Please note that this option is available only during the first month of your first semester at McGill.

All undergraduate students who pay tuition fees at either the Canadian or Quebec rates and who are members of the Students' Society of McGill University (SSMU) or the Macdonald Campus Students' Society (MCSS) are automatically covered by their applicable Students' Society's Health and Dental Plans. For details on fees, change of coverage dates and on what is covered by the plans, refer to www.ihaveaplan.ca. If you're not sure of your eligibility, contact the Alliance pour la santé étudiante au Québec (ASEQ) at 514-789-8775 or 1-866 795-4435, Monday to Friday, from 9 a.m. to 5 p.m. (www.aseq.com).

Revision, June 2011. Start of Revision.

Note for Continuing Studies: As a Continuing Studies student, you are not a member of SSMU or MCSS. Therefore, the coverage of the Students' Society’s Health and Dental Plans is not applicable.
Revision, June 2011. End of Revision.

Revision, August 2011. Start of Revision.

Note for Graduate and Postdoctoral Studies: Graduate students classed as Canadian full-time or Additional Session/Thesis Evaluation/Non-Thesis Extension as well as all postdoctoral candidates are automatically covered by their society's Health and Dental Plan (PGSS). Students without valid Canadian Medicare, please see section 1.2.11: Health Insurance – International Students. In 2011-2012, this plan costs $651 (single coverage). Students not charged during the Fall term for insurance fees can choose to enrol directly at the PGSS office during the January adjustment period. For details on what is covered by this plan as well as opt-out procedures, please refer to the information contained at http://pgss.mcgill.ca.

Revision, August 2011. End of Revision.

1.2.13 Special Medical Needs

If you have special medical needs, have your physician submit appropriate information, on a confidential basis, directly to the Student Health Service; see section 1.15.2: Student Services – Downtown Campus (www.mcgill.ca/studenthealth/clinic) for contact information on the Downtown Campus, and see www.mcgill.ca/macdonald-studentservices/our-services/student-health-service for Macdonald Campus.

1.2.14 Minerva

Minerva is McGill's web-based information system serving applicants, students, staff and faculty. To access Minerva, go to www.mcgill.ca/minerva and login. Once logged in, you can:

- Apply to McGill and view your application status.
- View class schedules, including course descriptions and spaces available in course sections.
- Register and make course changes.
- Change your major or minor program (not all faculties).
- View your unofficial transcript and degree evaluation reports.
- View your McGill login information to access the internet and email.
- View your Permanent Code, citizenship and Quebec residency status and fee information.
- Update personal information such as address, telephone number and emergency contacts.
- Submit an online course evaluation.
- Submit an application to participate in an exchange program (not all faculties).
- Apply to graduate.
- View graduation status and convocation details.
- Order official transcripts.
- Retrieve tax receipts.

For information on logging-in to the Minerva website, visit our IT Services website at www.mcgill.ca/it and select Logins and Passwords.

1.2.15 myMcGill

McGill's portal, myMcGill, gives students and staff a personalized interface to the University’s information systems.

myMcGill is a collection of useful links and offers an integrated web experience with a single sign-on (SSO) to several McGill web systems. This allows you to access multiple McGill systems without being prompted for additional logins.

Systems that you can access through the portal are:

- Athletics
- Classroom A/V
- Exchange (email)
- Famis
- Gateway (www.mcgill.ca)
- InfoEd
- Library
- Minerva
- myCourses (WebCT)
- myFuture
- myLab
To log into myMcGill, click the myMcGill tab at the top-right corner of the McGill homepage (www.mcgill.ca) or go to https://my.mcgill.ca.

1.3 Personal Information

Students must inform themselves of University rules and regulations and keep abreast of any changes that may occur. The Personal Information section of this publication contains important details pertaining to nominative information, legal documents, ID Cards, as well as other topics, and should be consulted periodically.

1.3.1 Updating Personal Information

It is important to keep your official records up to date, especially your mailing or billing address, because these are used by the University year round. If your address information on file is invalid, incomplete or missing, the University will hold your mail. Once you have provided a valid address, the University will resume sending your mail.

You must update your address(es) and/or telephone number(s) and emergency contact information on Minerva (www.mcgill.ca/minerva) under the Personal Menu.

If you are away from campus and do not have access to the internet, you can request changes by writing to your Student Affairs Office or to Service Point. Your written request must include your signature.

If you need to change important personal information that requires the University to verify official documents, such as a name or citizenship change, or correction of your birth date, you must go in person (as soon as possible) to Service Point, 3415 McTavish Street, Montreal, Quebec, H3A 1Y1. Macdonald Campus students can request changes in person at the Student Affairs Office, Laird Hall, Room 106.

Revision, June 2011. Start of Revision.

Note for Continuing Studies: If you need to change important personal information that requires the University to verify official documents, such as a change to your name or citizenship, or correction of your birth date, you must go in person (as soon as possible) to the School of Continuing Studies Client Services Office. Such changes can only be made in person at the School of Continuing Studies, Client Services Office, 688 Sherbrooke Street West, Room 1199.

Revision, June 2011. End of Revision.

1.3.2 Legal Documents: Why Does McGill Collect Legal Documents from You?

Your tuition status at McGill will vary depending on your status in Canada. In order for us to determine your appropriate rate of tuition (Quebec, Canadian out-of-province, or international), we require legal documents confirming your current status. We also require these documents to confirm your valid citizenship/immigration status. To find out which documents you must provide, refer to: section 1.3.3: Legal Documents: What Documents Does McGill Need from You?

Some of the documents McGill requests of you help us obtain your Permanent Code from the Government of Quebec. This unique 12-character code is issued by the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS), and is obligatory for all students registered in a Quebec institution.

If you have previously attended school in Quebec, you already possess a Permanent Code which can be found on your school report card or your CEGEP and/or university transcripts. After you have accepted the University's offer of admission, you can check on Minerva (under the Personal Menu) to see if McGill has received your Permanent Code.

You can consult your tuition and legal status (including your Permanent Code) on Minerva (www.mcgill.ca/minerva). Select Student Menu > Student Accounts Menu > View your Tuition and Legal Status.

1.3.3 Legal Documents: What Documents Does McGill Need from You?

Follow the instructions in the first row of this table that apply to you. Send clear, legible copies of documents (not originals).

<table>
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<tr>
<td>You have applied to McGill directly from CEGEP or you already have a student record at McGill</td>
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<tr>
<td>You have applied to McGill from another Quebec university</td>
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### Quebec and Canadian Out-of-Province Students

<table>
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<th>Situation</th>
<th>Required Documents</th>
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<tbody>
<tr>
<td>You were born in Quebec</td>
<td>Quebec birth certificate (Note 1 and 5)</td>
</tr>
<tr>
<td></td>
<td>Permanent Code Data Form (Note 2 and 6)</td>
</tr>
<tr>
<td>You were born in (or are a Landed Immigrant from) a Canadian province</td>
<td>Canadian birth certificate; or Canadian citizenship card (both sides of the card);</td>
</tr>
<tr>
<td>other than Quebec</td>
<td>Certificate of Indian status card; or Makivik Society card;</td>
</tr>
<tr>
<td></td>
<td>valid Canadian Record of Permanent Resident status (Note 3); or valid Canadian</td>
</tr>
<tr>
<td></td>
<td>Permanent Resident card (both sides of the card)</td>
</tr>
<tr>
<td></td>
<td>Permanent Code Data Form (Note 2 and 6)</td>
</tr>
<tr>
<td>You are a Quebec resident as defined by one of the other situations</td>
<td>Canadian birth certificate; or Canadian citizenship card (both sides of the card);</td>
</tr>
<tr>
<td>outlined by the Quebec Ministère de l'Éducation, du Loisir et du Sport</td>
<td>Certificate of Indian status card; or Makivik Society card;</td>
</tr>
<tr>
<td>(MELS)</td>
<td>valid Canadian Confirmation of Permanent Residence (Note 3); or valid Canadian</td>
</tr>
<tr>
<td></td>
<td>Permanent Resident card (both sides of the card)</td>
</tr>
<tr>
<td></td>
<td>Permanent Code Data Form (Note 2 and 6)</td>
</tr>
<tr>
<td></td>
<td>Attestation of Residency in Quebec Form (Note 6)</td>
</tr>
<tr>
<td></td>
<td>Other supporting documents, depending on which situation you checked on the above</td>
</tr>
<tr>
<td></td>
<td>Attestation of Residency Form</td>
</tr>
</tbody>
</table>

### International Students

<table>
<thead>
<tr>
<th>Situation</th>
<th>Required Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>You will be studying at McGill for less than 6 months (i.e., for only</td>
<td>Visitors Permit issued at your port of entry into Canada by Citizenship and</td>
</tr>
<tr>
<td>one academic semester) as a non-degree student (e.g. Exchange, Special,</td>
<td>Immigration Canada</td>
</tr>
<tr>
<td>Visiting)</td>
<td>Photo page of your passport and the page date-stamped by Citizenship and</td>
</tr>
<tr>
<td></td>
<td>Immigration Canada</td>
</tr>
<tr>
<td></td>
<td>Permanent Code Data Form (Note 2 and 6)</td>
</tr>
<tr>
<td>You will be in Canada for more than 6 months (i.e. you are enrolled in</td>
<td>Certificate of Acceptance of Quebec (CAQ)</td>
</tr>
<tr>
<td>a degree, certificate or diploma program, usually for two or more</td>
<td>Permanent Code Data Form (Note 2 and 6)</td>
</tr>
<tr>
<td>consecutive academic semesters)</td>
<td>Study Permit issued by Immigration Canada (Note 4)</td>
</tr>
</tbody>
</table>

**Note 1:** You may alternatively provide your Quebec baptismal certificate if it was issued prior to January 1, 1994, and clearly shows where you were born and that your baptism in Quebec occurred no more than four months after your date of birth.

**Note 2:** Your signed Permanent Code Data Form is usually required. If the names of your parents appear on your birth certificate, or if you have already provided McGill with your Permanent Code, you do not need to supply this form.

**Note 3:** Your valid Canadian Permanent Resident status can be proved by a copy of your Canadian Confirmation of Permanent Residence (IMM 5292) document or with your Canadian Permanent Resident card (copy of both sides required). Alternatively, you may provide your Immigration Record of Landing (IMM 1000) document. Note that McGill reserves the right to ask you for copies of both your PR card and your IMM document.

**Note 4:** If you are a refugee, your Convention Refugee status document is required instead of a Study Permit.

**Note 5:** Usually McGill needs your birth certificate to prove your place of birth in Quebec. If you already have a valid Quebec Permanent Code, McGill will accept a copy of your valid Canadian passport that indicates your birth place as being within the province of Quebec, as proof that you qualify for Quebec residency.

**Note 6:** You can find links to download and print the Permanent Code Data and Attestation of Quebec Residency forms at www.mcgill.ca/legaldocuments/forms.
1.3.3 Fee Exemptions

Revision, June 2011. Start of revision.

Students in certain categories may be eligible to claim an exemption from the international rate of tuition fees according to the regulations set by the Quebec Ministère de l’Éducation, du Loisir et du Sport (MELS). These exemptions lower your fees to the Quebec rate of tuition. A list of categories and the required application form are available at [www.mcgill.ca/legaldocuments](http://www.mcgill.ca/legaldocuments).

Revision, June 2011. End of revision.

1.3.4 Legal Documents: Has McGill Received Your Documents?

1.3.4.1 Quebec/Canadian/International Fees

Once McGill has received your documents, it usually takes one week to process them and update your file accordingly.

- Check your tuition status on the Minerva ([www.mcgill.ca/minerva](http://www.mcgill.ca/minerva)) Student Accounts menu: Student Menu > Student Accounts Menu > View your Tuition and Legal Status.
- Check the phrase: Fees currently calculated according to rules for... This will tell you if your tuition status is currently being billed at the international rate, the Canadian rate, or at the Quebec rate. For information on fees, see [www.mcgill.ca/student-accounts](http://www.mcgill.ca/student-accounts).
- Electronic billing is the official means of delivering fee statements to all students; you may view your e-bill on Minerva. For more information, see the following website: [www.mcgill.ca/student-accounts](http://www.mcgill.ca/student-accounts).

If you do not agree with your tuition status, notify McGill right away. If you provide additional documentation in support of your file after the last day of classes for the given term, McGill will be unable to accept your requested changes, or to update your tuition status rate for that term.

1.3.4.2 Permanent Code

The Quebec Ministère de l’Éducation, du Loisir et du Sport (MELS) usually takes one to four weeks to verify or issue your Permanent Code.

- Check your Permanent Code on Minerva: Personal Menu > Name Change or alternately via Student Menu > Student Accounts Menu > View Tuition Fee and Legal Status. If your 12-character Permanent Code appears there, your documents are in order. If not, you have not yet provided McGill with your documents listed in section 1.3.3: Legal Documents: What Documents Does McGill Need from You? or the Quebec Ministère de l’Éducation, du Loisir et du Sport (MELS) has not yet confirmed that your documents are sufficient to create a Permanent Code.

1.3.5 Legal Documents: What Are the Consequences of Not Providing Your Documents?

The deadline to submit documents in support of a change to your tuition status is the last day of classes for the current term.

McGill will not produce your ID card until all of your legal documents have been received. Your ID card is essential to the use of many services on campus, and to take your final exams.

If we are missing the required legal documents, a hold will be added to your record preventing you from registering or dropping any courses, and from obtaining your official transcript.

International students who have not provided their valid immigration documents to McGill may be de-registered.

If your tuition status is changed and your fees are reduced as a result of the document review process, McGill will waive the difference on any accumulated late payment or interest charges.

1.3.6 Legal Documents: Where Do I Send my Documents?

You must send in all your documents after you have been accepted to McGill but before the start of classes. Do not send originals. Email or mail clear and legible copies of your documents. Write your McGill student ID on each document so that McGill can match them to your record. The sooner you submit your documents, the sooner the University can update your status and ensure that your record is in order. Refer to [www.mcgill.ca/legaldocuments](http://www.mcgill.ca/legaldocuments) for further details.

By Email:

Follow these steps to submit your legal documents electronically.

1. **Save the attached file in an accepted format.**
   - Standard PDF (.pdf) – encrypted PDFs will not be accepted.
   - Tagged image format (.tif, .tiff; for scans). Ensure that you save your documents properly in one of the above formats - do not just rename the file extension. Due to the possibility of computer viruses, McGill does not accept Microsoft Word documents (.doc), hypertext files (.htm, .html), JPG, GIF, or any other format.
   - Ensure that the resolution used is at least 300 dpi (dots per inch) for an electronic replica (scan) of documentation (e.g., a scan of your birth certificate). The preferred file size is 100KB per image.
3. Address your email to legaldocumentation@mcgill.ca and attach your relevant scanned document(s). Attach the file(s) to your email; do not include the documents in the body of your email.

4. Put your First Name, Last Name, and McGill ID number in the subject line of your email.
   Note: Individual email size (including your attachments) should not exceed 5 MB (5120 KB).

By Mail or Courier:
Enrolment Services
Documentation Centre
688 Sherbrooke Street West, Suite 760
Montreal, QC H3A 3R1 CANADA

In Person:
Service Point
3415 McTavish Street
Montreal, Quebec, H3A 1Y1

If there is a problem with your documents, contact:
Telephone: 514-398-7878
Email: http://webforms.mcgill.ca/servicepoint/request.asp?bhcp=1

1.3.6.1 For the School of Continuing Studies

By Mail or in Person:

McGill University
The School of Continuing Studies, Client Services Office
688 Sherbrooke Street West
11th Floor
Montreal, QC H3A 3R1

Revision, June 2011. Start of revision.

Revision, June 2011. End of revision.

By Fax:

514-398-2650

If there is a problem with your documents, contact Client Services at:
Telephone: 514-398-6200
Email: info.conted@mcgill.ca; legaldocuments.conted@mcgill.ca

1.3.7 Identification (ID) Cards

As a student registered at McGill you are required to present an ID card to:

- write examinations.
- use libraries and student services, including certain laboratories.
- access residence buildings.

To receive your ID card you must be a registered student, while also providing your Permanent Code information and proof of legal status in Canada (for a list of acceptable documents, see section 1.3.3: Legal Documents: What Documents Does McGill Need from You?).

ID cards will not be issued if any of your legal documents are missing.

The Student Identification Card is the property of the University, for use by the cardholder only, and is not transferable. If you withdraw from all of your courses, you must attach your ID card to the withdrawal form or return it to Enrolment Services (or the Faculty of Agricultural and Environmental Sciences, Student Affairs Office, Macdonald Campus).

- New students must be registered for at least one course to obtain an ID card.
- You must allow at least three hours after you have registered before applying for your ID card.
- If you do not register for consecutive terms you should retain your ID card to avoid having to replace it when you re-register.
- If your card has expired there is no charge for a replacement as long as you hand in the ID card.
• If you change programs or faculties there is no charge as long as you hand in the ID card.
• If your card has been lost, stolen or damaged, there is a $25 replacement fee.
• If you need security access to labs or other facilities, see www.mcgill.ca/security/services/access.

1.3.7.1 ID Card Schedule for the Downtown Campus:
The locations and opening hours of ID card centres can be found on the Student Information website at www.mcgill.ca/students.

Revision, June 2011: Start of Revision.

• Quebec CEGEP students can obtain their ID cards as of June 9, 2011.
• Canadian and International students can obtain their ID cards as of July 27, 2011.

Revision, June 2011: End of Revision.

1.3.7.2 ID Card Schedule for the Macdonald Campus:
Students can obtain an ID card from:

Revision, June 2011: Start of Revision.

Student Affairs Office, Room 106, Laird Hall
Office hours:
Monday through Friday – 9:00 a.m. to 4:00 p.m.
Friday throughout the summer – 9:00 a.m. to 3:00 p.m.
Closed for the statutory holidays of Friday June 24, and Friday July 1.

Revision, June 2011: End of Revision.

• Quebec CEGEP students (newly registered) can obtain their ID cards as of June 9, 2011.
• Canadian and International Students can obtain their ID cards as of August 1, 2011.

As of Monday, August 29, 2011, you can obtain an ID card from the Macdonald Campus Student Affairs Office during normal office hours.

Revision, June 2011. Start of Revision.

Note for Continuing Studies: You must allow at least 1 day after you have registered before applying for your ID card. You will not be issued an ID card if you have fees owing. You may obtain your ID card at the Client Services Office of the School of Continuing Studies. If you withdraw from all of your courses, you must attach your ID card to the withdrawal form or return it to the Client Services Office of the School of Continuing Studies.

Revision, June 2011. End of Revision.

1.3.8 Name: Legal Name

This is the name that will appear on your degree, diploma or certificate on graduation, and on your transcript. It is also used by the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) to create a Permanent Code.

All students are registered under their legal name as it appears in one of the following documents:

1. Canadian birth certificate.
2. Canadian Immigration Record of Landing (IMM 1000 or IMM 5292 and Permanent Residence card, both sides).
3. Canadian Immigration Study or Work Permit document.
5. International passport (for Canadians, a Canadian citizenship card is required. Note that a Canadian passport is not acceptable).
6. Letter from international student's consulate or embassy in Canada.
7. Marriage certificate issued outside of Quebec (translated into English or French by a sworn officer if in another language). Note that Quebec marriage certificates are only acceptable if issued prior to 1984.
8. Certificate of Name Change issued by the Quebec Directeur de l'état civil.

In the case of a variation in the spelling of the name among these documents, the University will use the name on the document that appears first on the above list.
1.3.9 Name: Preferred First Name

You can provide a preferred first name on your application for admission or, once admitted, on Minerva (www.mcgill.ca/minerva), under the Personal Menu. From the Personal Menu, select Name Change and you will be able to add/modify this field.

Your preferred first name appears on class lists (in parentheses beside your legal name) for use by instructors. Note that your legal name will continue to appear on your transcript and diploma.

You can request to have your preferred first name display as part of your McGill Email Address by submitting a change to Network and Communication Services via REGGIE (www.mcgill.ca/reggie). For more information, see www.mcgill.ca/student-records/biographical.

1.3.10 Name: Verification of Name

You should verify the accuracy of your name on McGill’s student records via Minerva (www.mcgill.ca/minerva). To do this, go to Personal Menu > Name Change, where you can make minor corrections such as changing case (upper/lower), adding accents and spacing.

Note that you cannot change the name on your record via Minerva. Requests for such changes must be made by presenting official documents (see section 1.3.8: Name: Legal Name and section 1.3.9: Name: Preferred First Name) in person at Service Point, 3415 McTavish Street, Montreal, Quebec, H3A 1Y1.

Revision, June 2011. Start of Revision.

Note for Continuing Studies: Requests for such changes must be made by presenting official documents (see section 1.3.8: Name: Legal Name) in person at the Client Services Office, School of Continuing Studies.

Revision, June 2011. End of Revision.

1.4 Registration

Once you have confirmed your intention to attend McGill on Minerva at www.mcgill.ca/minerva, you must register by adding courses to your record during the registration periods listed at www.mcgill.ca/importantdates. You must register on Minerva and can continue to do so throughout the registration period by adding and dropping courses until you have finalized your schedule.

All course descriptions are available at www.mcgill.ca/students/courses/calendars. If you are a new student, you should refer to section 1.4.2: Course Information and Regulations to familiarize yourself with McGill's course numbering system (section 1.4.2.1.1: Course Numbering), multi-term course rules (section 1.4.2.1.2: Multi-term Courses), and course terminology (section 1.4.2.1.3: Course Terminology).

For fee policies related to registration and withdrawal from courses or withdrawal from the University, please refer to section 1.5: Fees.

Note for Arts, Science and B.A. & Sc.: For detailed information on registration you can also refer to:

- Arts: www.mcgill.ca/oasis

Note for the Faculty of Engineering:

- If you are a returning student, it is mandatory that you see a departmental/school academic adviser to review your course selection at the beginning of the Fall and Winter terms.
- If you are a new student, it is mandatory that you see a departmental/school academic adviser during the advising period. For advising days, times and locations for new students, see www.mcgill.ca/engineering/student/sao/newstudents.

Note for the Faculty of Law: All first-year students and all new students in the Faculty of Law must register by adding the registration confirmation course REGN RCLW on Minerva at www.mcgill.ca/minerva. The registration period for new Law students for the 2011-12 academic year begins Tuesday, July 12, and ends Thursday, September 1, 2011.

All first-year students and new students must present themselves at the Faculty of Law on Monday, August 29, 2011 to complete their registration. Welcoming of new students will follow registration.

Returning Students - At the end of the Winter term, students in upper years are required to register on Minerva indicating their course selections for the next academic year.

Students in the Faculty of Law should consult registration materials available at www.mcgill.ca/law-studies/courses.

1.4.1 Registration Periods

The dates given below were accurate when this publication was finalized. Although changes are not anticipated, you should confirm the dates at www.mcgill.ca/importantdates.
1.4.1.1 Returning Students

Registration for most undergraduates will take place between Thursday, March 31 and Monday, July 25, 2011.

Registration will open in the following order:

<table>
<thead>
<tr>
<th>Students</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 3 and Year 4</td>
<td>Thursday, March 31</td>
</tr>
<tr>
<td>Year 2</td>
<td>Tuesday, April 5</td>
</tr>
<tr>
<td>All other returning students</td>
<td>Thursday, April 7</td>
</tr>
</tbody>
</table>

Some faculties and departments set their own schedules for advising and registration as of these dates. Further information is available at the faculty student affairs offices and website. For more information, see www.mcgill.ca/students/advising/advisordirectory.

To successfully complete registration, you must have an acceptable Academic Standing from the previous session and have paid any outstanding fees and/or fines.

Revision, August 2011. Start of revision.

Note for Law: In order to facilitate access to small enrolment courses and ensure equity among students, registration priorities are programmed in Minerva. These priorities, established after consultation between the Faculty and the Law Students Association, are made on a rolling basis by class year (i.e., 4th year students register first). Priority registration dates are established by the Student Affairs Office and posted at www.mcgill.ca/law-studies/courses.

Revision, August 2011. End of revision.

1.4.1.2 Newly Admitted Students Entering in September 2011

Registration will take place between Thursday, June 9 and Thursday, September 1.

Registration will open in the following order:

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thursday, June 9</td>
<td>Registration opens for students admitted from Quebec CEGEPs.</td>
</tr>
<tr>
<td>Tuesday, July 26</td>
<td>Registration opens for students whose highest level of education prior to registering at McGill is a French Baccalaureate, International Baccalaureate or at least one year of university, or who were admitted on the basis of Advanced Levels, CAPE or other academic qualification which provides for Advanced Standing credit, and who have a classification of Year 1 (U1) or higher.</td>
</tr>
<tr>
<td>Wednesday, July 27</td>
<td>Registration opens for students whose highest level of education prior to registering at McGill is high school, and who have been admitted to the following faculties/schools/degrees: Arts (including School of Social Work), B.A.&amp;Sc., Education, Management, Music, and Religious Studies.</td>
</tr>
<tr>
<td>Thursday, July 28</td>
<td>Registration opens for students whose highest level of education prior to registering at McGill is high school, and who have been admitted to the following faculties/schools: Agricultural and Environmental Sciences, Engineering including Architecture, Nursing, Occupational Therapy, Physical Therapy, and Science.</td>
</tr>
</tbody>
</table>

If you are a newly admitted student entering in September 2011 and you want to register for courses in the Summer of 2011, you can do so on Minerva. Please check the Summer Studies Calendar for further information at www.mcgill.ca/students/courses/calendars or see www.mcgill.ca/summer.

Revision, August 2011. Start of revision.

Revision, August 2011. End of revision.

1.4.1.3 Newly Admitted Students Entering in January 2012

Registration will take place between Thursday, December 1, 2011, and Monday, January 9, 2012.

Revision, August 2011. End of revision.

Revision, August 2011. Start of revision.

Revision, August 2011. End of revision.

Revision, August 2011. Start of revision.

Revision, August 2011. Start of revision.
Revision, August 2011. End of revision.

1.4.1.4 Late Registration
If you fail to register during the normal registration period, you can register within the period designated by the University for late registration. You will be assessed a late registration fee as listed below:

Revision, August 2011. Start of revision.

Returning Students: You may register late from Tuesday, July 26 until and including Thursday, September 1 with the payment of a late registration fee of $100 ($50 for Special Students).

Revision, August 2011. End of revision.

New, Readmitted, and Returning Students (Fall): You may register late via Minerva from Friday, September 2 until Tuesday, September 13 with the payment of a late registration fee of $150 ($75 for Special Students).

Revision, August 2011. Start of revision.

New and Readmitted Students (Winter): You may register late via Minerva from Tuesday, January 10, 2012, until Tuesday, January 24, 2012, with the payment of a late registration fee of $150 ($75 for Special Students).

Revision, August 2011. End of revision.

Special Late Registration: If you cannot register online during the late registration period, usually due to late admission, you may receive special permission to register in person. This information is included with your letter of acceptance.

1.4.2 Course Information and Regulations

Students are advised to also refer to Registration and section 1.6: Student Records.

The University reserves the right to make changes without prior notice to the information contained in this publication, including the revision or cancellation of particular courses or programs.

At the time this publication was finalized, new courses and modifications to some existing courses were under consideration. Students preparing to register are advised to consult Class Schedule on the web at www.mcgill.ca/students/courses for the most up-to-date information on courses to be offered in 2011-2012. Not all courses listed are offered every year.

1.4.2.1 Course Information and Regulations: Class Schedule

Class Schedule for the upcoming Fall and Winter terms normally becomes available in March prior to the opening of advising at www.mcgill.ca/study. The Summer term schedule is normally published in January. Class Schedule includes the days and times when courses are offered, class locations, names of instructors, and related information. You can also access the details of scheduled courses by clicking the CRN (course reference number) that appears with each course section shown in Class Schedule.

You should make a note of any preregistration requirements for a course, such as placement tests or departmental approval/permission required.

Class Schedule information is subject to change and is updated as courses are added, cancelled, rescheduled or relocated. It is your responsibility to consult Class Schedule at the time of registration, and again before classes begin, to ensure that changes have not caused conflicts in your schedule.

1.4.2.1.1 Course Numbering

Each McGill course is assigned a unique seven-character course “number”.

The first four characters (Subject Code) refer to the unit offering the course.

These codes were implemented in September 2002, replacing the three-number Teaching Unit Codes previously used. A complete list of Teaching Unit Codes and their Subject Code equivalents can be found at www.mcgill.ca/student-records/transcripts in the section Grading and pre-2002 course numbering.

The three numbers following the Subject Code refer to the course itself, with the first of these indicating the level of the course.

- Courses numbered at the 100, 200, 300, and 400 levels are intended for undergraduate students. In most programs, courses at the 300 level and 400 level are normally taken in the student’s last two years.
- Courses at the 500 level are intended for qualified senior undergraduate students but are also open to graduate students.
- Courses at the 600 and 700 level are intended for graduate students only.

Two additional characters (D1, D2, N1, N2, J1, J2, J3) at the end of the seven-character course number identifies multi-term courses.

1.4.2.1.2 Multi-term Courses

Most courses at McGill are single term (Fall or Winter or Summer) courses with final grades issued and any credits earned recorded at the end of that term. Single term courses are identified by a seven-character course number.
A unit may, however, decide that the material to be presented cannot be divided into single term courses or it is preferable that the work to be done is carried out over two, or three, terms. Under such circumstances, courses are identified by a two-character extension of the course number.

In some cases, the same course may be offered in various ways: as a single term and/or in one or more multi-term versions. The course content and credit weight is equivalent in all modes, the only difference being the scheduling, and students cannot obtain credit for more than one version.

Courses with numbers ending in D1 and D2 are taught in two consecutive terms (most commonly Fall and Winter). Students must register for the same section of both the D1 and D2 components. When registering for a Fall term D1 course on Minerva, the student will automatically be registered for the Winter term D2 portion. No credit will be given unless both components (D1 and D2) are successfully completed in consecutive terms, e.g., Fall 2010 and Winter 2011.

Courses with numbers ending in N1 and N2 are taught in two non-consecutive terms (Winter and Fall). Students must register for the same section of both the N1 and N2 components. No credit will be given unless both components (N1 and N2) are successfully completed within a twelve (12) month period.

Courses with numbers ending in J1, J2 and J3 are taught over three consecutive terms. Students must register for the same section of all three components (J1, J2, J3). No credit will be given unless all three components are successfully completed.

Note for the Faculties of Arts and Science (including B.A. & Sc.): If you select a multi-term course, you are making a commitment to that course for its entirety. You MUST register in the same section in all terms of a multi-term course. Credit will be jeopardized if you deliberately register in different sections of a multi-term course.

In exceptional cases, when circumstances are beyond the student's control, the Faculty Student Affairs Office may grant permission to change sections midway through a multi-term course. You must make your request in writing citing your reason for the request. The request must also have the written support of the instructors of the sections involved and of the coordinator of the course (if applicable). Your request must be submitted to:

- Arts students - Associate Dean, Student Affairs
- Science and B.A. & Sc. students - Director of Advising Services, Science

Important Conditions for Multi-term Courses

1. Students must be registered for each component of the multi-term course. Students must ensure that they are registered in the same section in each term of the multi-term course.
2. Students must successfully complete each component in sequence as set out in the multi-term course. Credit is granted only at the end of the multi-term course; no credit is given for partial completion.

1.4.2.1.3 Course Terminology

Prerequisite: Course A is prerequisite to course B if a satisfactory pass in course A is required for admission to course B.

Corequisite: Course A is corequisite to course B if course A must be taken concurrently with (or may have been taken prior to) course B.

Credits: The credit weight of each course is indicated in parentheses beside the course title. For D1 and D2 courses the credit weight is indicated after the course number. For further information, refer to section 1.6.2: Credit System.

1.4.2.1.3.1 Course Nomenclature in Program Descriptions

Revision, August 2011. Start of revision.

Required Courses: Mandatory courses that must be completed to fulfill the requirements of a program (e.g., major, minor, etc. at the undergraduate level or specific courses at the graduate), unless the student receives exemptions. Students have no choices among required courses.

Complementary Courses: Courses selected from a restricted list, a particular subject area, or a discipline. In some programs, students must include a number of these to meet program requirements. Complementary courses are not electives.

Elective Courses: Courses, in some cases, taken outside of a student’s program of study that do not count toward the fulfillment of the specific program requirements. Some restrictions may apply, but students have the most choice in selecting elective courses. Some faculties also permit students to take elective courses using the Satisfactory/Unsatisfactory (S/U) Option. Undergraduate students should consult their faculty regulations concerning electives; graduate students require the approval of their Program Director and GPS.

Revision, August 2011. End of revision.

1.4.2.1.4 First-Year Seminars

First-Year Seminars (FYS) are limited-enrolment credit courses offered by the Faculties of Arts and Science to students in their first year of undergraduate study at McGill, i.e., newly admitted students in U0 or U1. Students in any faculty can enrol in an FYS, subject to the conditions and/or restrictions of the program in which they are registered. Students may take only one FYS.

FYS classes are limited to a maximum of 25 students and are designed to provide closer interaction with the professor, and better working relations with peers than are available in large introductory courses. The seminars endeavour to teach the latest academic developments and expose participants to advanced research methods. Registration is on a first-come, first-served basis.

For a listing of First-Year Seminars, see Faculty of Arts > First-Year Seminars and Faculty of Science > Registration for First-Year Seminars.

1.4.2.1.5 Faculty/School Specific Information

All students must comply with the regulations and requirements contained in their Faculty section of this publication.

1.4.2.1.5.1 Agricultural and Environmental Sciences

Students should note that there are no supplemental examinations for Agricultural and Environmental Sciences courses.
1.4.2.1.5.2 Arts
For Faculty of Arts specific program and course information, refer to:

section 1.4.2: Course Information and Regulations
www.mcgill.ca/oasis

Term(s) offered (Fall, Winter, Summer) may appear after the course credit weight to indicate when a course would normally be taught.

All courses have limited enrolment. You may register for and take for credit any course, unless otherwise indicated, in the sections of this publication applicable to the Faculties of Arts and of Science, subject to the course restrictions listed in this section.

Since the registration system is unable to verify whether or not Faculty regulations are respected, it is technically possible to register for courses that may not be credited towards your program. When your record is manually verified, however, any courses taken that break the Faculty or degree regulations will be flagged after the end of course change period as “not for credit”. As a result, your expected date of graduation may be delayed.

Some courses may require special permission. You should consult this publication and/or the Class Schedule at www.mcgill.ca/study well in advance of the course change period to determine if permission is required of the instructor, the department, or the Faculty for any course you want to take.

If you believe that you have valid reasons for taking a course that may not be credited towards your program, you must obtain the permission of the Associate Dean or Director.

1.4.2.1.5.3 Education

Some courses will be available in the evenings only, or will be offered during the Summer term.

Students should give particular notice to prerequisite and corequisite courses and registration for Field Experience courses.

1.4.2.1.5.4 Engineering

Most courses offered by the Faculty of Engineering, including the School of Architecture, are restricted to Engineering students. Non-Engineering students should obtain permission from a Faculty adviser in the Student Affairs Office, Engineering Student Centre (Frank Dawson Adams Building, Room 22), to register for Engineering courses.

A limited number of School of Architecture (ARCH) courses are open to students not registered in the School. Please refer to individual course descriptions.

The average division of time for a course is indicated in hours in the course listing after the course credit. For example, (3) (3-0-6) indicates a three-credit course consisting of three lecture hours per week, no other contact hours and six hours of personal study per week.

1.4.2.1.5.4.1 Extra Courses

Courses that you choose to take outside your program may be classified as extra, provided that you choose this option at the time of registration. The course will be designated as extra (“RX” at the time of registration, and “E” once the course is graded) on your transcript, and the grade earned in that course will not be included in your grade point average (GPA) calculation. This option will not be added to your record after the Course Change (add/drop) deadline. Courses that are taken to satisfy your engineering program requirements or minor requirements cannot be designated as extra.

1.4.2.1.5.4.2 Prerequisites and Corequisites

You must ensure that you have completed any course prerequisite(s) and/or corequisite(s) before course registration. If you have registered for a course and did not satisfy the prerequisite(s) and/or corequisite(s), the course may be dropped from your record automatically by Minerva.

If you received advanced credit(s)/exemption(s) or passed a placement exam for a course and are blocked from registration because of a prerequisite or corequisite error, you must go to your department/school in order to receive the appropriate permit override.

1.4.2.1.5.5 Management

Management students should give particular notice to:

Desautels Faculty of Management > Grading and Credit
Desautels Faculty of Management > BCom Program Credit Structure: General Management Program (Concentrations)
Desautels Faculty of Management > BCom Program Credit Structure: Major or Honours Programs
Desautels Faculty of Management > Management Core

1.4.2.1.5.6 Science

For Faculty of Science specific program and course information, refer to:

section 1.4.2: Course Information and Regulations
www.mcgill.ca/science/sousa

Term(s) offered (Fall, Winter, Summer) may appear after the course credit weight to indicate when a course would normally be taught.

All courses have limited enrolment. You may register for and take for credit any course, unless otherwise indicated, in the sections of this publication applicable to the Faculties of Arts and of Science, subject to the course restrictions listed in this section.

Since the registration system is unable to verify whether or not Faculty regulations are respected, it is technically possible to register for courses that may not be credited towards your program. When your record is manually verified, however, any courses taken that break the Faculty or degree regulations will be flagged after the end of the course change period as “not for credit”. As a result, your expected date of graduation may be delayed.
Some courses may require special permission. You should consult this publication and/or the Class Schedule at www.mcgill.ca/study well in advance of the course change period to determine if permission is required of the instructor, the department, or the Faculty for any course you want to take.

If you believe that you have valid reasons for taking a course that may not be credited towards your program, you must obtain the permission of the Associate Dean or Director.

1.4.3 Course Load

It is your responsibility to follow the faculty regulations listed below. When registering on Minerva (www.mcgill.ca/minerva), you must not exceed the maximum credits permitted by your faculty. For information on course load requirements for entrance scholarships' renewal and in-course awards, see section 1.9.1: Entrance Awards for McGill Students.

1.4.3.1 Normal Course Load

The normal course load in most undergraduate faculties is 15 credits per term. If you carry fewer than 12 credits per term, you are considered to be a part-time student in that term.

- **Note for the Faculty of Agricultural and Environmental Sciences and the Schulich School of Music:**
  - The normal course load is 15 to 18 credits per term.

- **Note for the Faculties of Arts and Science (including B.A. & Sc.):**
  - Newly admitted students may take up to 17 credits per term.
  - Continuing students in satisfactory standing may take up to 17 credits per term.
  - Continuing students whose CGPA is above 3.50 may take more than 17 credits per term only with written permission from their faculty Associate Dean or Director.

- **Note for the Faculties of Education, Management and Religious Studies:**
  - Newly admitted students may take up to 17 credits per term.
  - Continuing students in satisfactory standing may take up to 17 credits per term.

- **Note for the Faculty of Engineering:**
  - The normal course load is 15 to 18 credits per term.
  - If you want to register for more than 18 credits in a term, you must obtain permission from your departmental/school adviser.
  - If you have deferred exams (grade of L on your unofficial transcript), you cannot register for more than 18 credits or write more than six exams per term, whichever is greater.
  - You must register for enough credits to satisfy visa, financial aid and/or scholarship requirements.
  - The average number of hours per week of course activities is indicated in hours in the course listing after the course credit. For example, (3-0-6) indicates a course consisting of three lecture hours per week, no other contact hours, and six hours of personal study per week.

1.4.3.2 Course Load for Students in Probationary Standing

Students in probationary standing may take up to 12 credits per term, with the following exceptions:

- Agricultural and Environmental Sciences: 14 credits
- Arts: up to 14 credits
- Engineering: 13 credits maximum, including repeated courses
- Management: 12 credits maximum of new material
- Music: 14 credits
- Science: up to 14 credits

In some cases, a student in probationary standing may add a repeated course in which a grade of D or F was obtained.

1.4.3.3 Course Information and Regulations

For course information and regulations, see section 1.4.2: Course Information and Regulations in this publication.

1.4.4 Changing Programs within Selected Faculties

If you are registered in a program in one of the following faculties, you may add or change programs within your faculty using Minerva (www.mcgill.ca/minerva) under the Student Records Menu:
• Arts
• Science (see Note 2 below)
• Bachelor of Arts and Science degree
• Management (certain programs only)
• Education (certain programs only)
• Engineering (certain programs only; see below)

Certain restrictions apply. In all cases, you should consult the appropriate adviser for approval before making any changes and for faculty-specific regulations concerning program changes.

You are not permitted to use Minerva to change your degree (with the exception of Engineering, as below) or to select a program in another faculty or school.

- **Note for Arts, Science, or B.A. & Sc. freshman programs (97 or more credits):** You cannot change your freshman program on Minerva, but may change options within your freshman program where options are available. Once you have been promoted from the freshman year you will be able to change departmental programs using Minerva as outlined in the note below.

- **Note for Arts, Science*, or B.A. & Sc. degree (96 or fewer credits):** You may change major/major concentrations, minor/minor concentrations or faculty programs using Minerva. You may also change into, or out of, an honours program. Some restrictions apply.
  
  * Science students admitted September 2009 and later are limited to choosing majors or honours programs within the Science group to which they were admitted, but may continue to choose freely from all available minor programs. To change to a major or honours program in another Science group, students must make an Intra-Faculty Transfer application; see [www.mcgill.ca/student-records/inter-faculty-transfers](http://www.mcgill.ca/student-records/inter-faculty-transfers).

- **Note for Desautels Faculty of Management:** You may add or change certain programs using Minerva. Please verify restrictions with the BCom Office ([www.mcgill.ca/desautels/bcom/contact](http://www.mcgill.ca/desautels/bcom/contact)).

- **Note for Faculty of Education (B.Ed. Secondary program):** You may add, drop or change minors using Minerva.

- **Note for Faculty of Education (Kinesiology program):** You may add, drop or change minors using Minerva.

- **Note for Faculty of Engineering students who have confirmed their offer of admission to the B.Eng. Electrical/B.Eng. Computer/B.S.E. (Software Engineering) program:** You must select your specific program using Minerva before the beginning of classes, in your first term. To make any further change, you must consult an adviser in the Department of Electrical and Computer Engineering ([www.mcgill.ca/ece/supportstaff](http://www.mcgill.ca/ece/supportstaff)). If you are in another program in the Faculty of Engineering, you cannot make any program changes using Minerva.

- **Revision, August 2011. Start of revision.**

- **Note for Faculty of Law:** The addition of a major or minor must be approved by the Student Affairs Office; you will be blocked from making any program changes on Minerva.

- **Revision, August 2011. End of revision.**

### 1.4.5 Quebec Inter-University Transfer Agreement: McGill Students

The Quebec Inter-University Transfer (IUT) agreement permits concurrent registration at McGill and another Quebec institution.

If you are a regular McGill undergraduate or graduate degree, diploma or certificate student, you may register, with your faculty's permission, at any Quebec university for three, or in some cases six, credits per term in addition to your registration at McGill. You may also obtain permission to complete a full term (i.e., 12 to 15 credits) at another Quebec university. These courses, subject to faculty regulations, will be recognized by McGill for the degree that you are registered for, up to the limit imposed by the residency requirements of the program. Normally, you must complete a minimum residency requirement of 60 credits at McGill in order to qualify for a McGill degree (you should check with your faculty). This privilege will be granted if there are valid academic reasons.

If you want to take advantage of this agreement, consult your Student Affairs Office for details. Note that this agreement is subject to the following conditions:

- The Quebec universities concerned may, at their discretion, refuse the registration of a student for any of their courses.
- You must complete your faculty and program requirements.
- You are responsible for ensuring that the McGill Class Schedule permits you to take these courses without conflict.
- The Quebec universities concerned are not responsible for special arrangements in cases of examination or class schedule conflicts.
- Grades earned at the host university will not be included in your McGill grade point averages (GPA) or show on your McGill transcripts.
- If you are attending McGill as an Exchange student from outside Quebec, you are not eligible to take courses at another Quebec institution through the IUT agreement.
- Any grades received late from host universities may delay your graduation.
If you are a scholarship holder, you should consult with your Student Affairs Office and the scholarships coordinator concerning eligibility for continuation or renewal of your award(s).

You must initiate an online Quebec Inter-University Transfer (IUT) application to request the required authorizations at www.mcgill.ca/students/transfercredit/current/iut. You may find additional information posted at your faculty website.

**Note:** Once the Quebec Inter-University Transfer (IUT) application is approved by both the home and host universities, you must register in the course that was approved. The method of registration of the host university will vary (e.g., web, in-person, phone, etc.). You must allow sufficient time to complete and submit your electronic application, because you are responsible for adhering to all the host university's registration deadlines. If you decide later to drop or withdraw from the approved course(s), you will need to drop or withdraw from the course using the host university's registration method AND submit this change on the online Quebec Inter-University Transfer (IUT) application.

The host institution will automatically submit your grades to McGill for any completed courses.

### 1.4.6 Quebec Inter-University Transfer Agreement: Visiting IUT Students

The Quebec Inter-University Transfer (IUT) agreement permits concurrent registration at McGill and another Quebec institution.

If you are a student at another Quebec university and you want to take courses at McGill using the Quebec Inter-University Transfer (IUT) agreement, you must initiate an online application to request the required authorizations at www.mcgill.ca/students/transfercredit/current/iut. You should also refer to your home university website for regulations on the number of credits allowed, as well as the policies for transferring the credits.

**Note:** Once the Quebec Inter-University Transfer (IUT) application is approved by both the home and host universities, you remain responsible for registering in the course that was approved. At McGill, you have to register on Minerva (www.mcgill.ca/minerva). You will be informed via email of the necessary registration steps once your application has been approved. You must allow sufficient time to complete and submit your electronic application, because you are responsible for adhering to all McGill’s registration deadlines. If you decide later to drop or withdraw from the approved course(s), you will need to drop or withdraw from the course on Minerva AND submit this change on the online Quebec Inter-University Transfer (IUT) application.

McGill will automatically submit your grades for any completed courses to your home university.

**Revision, June 2011. Start of Revision.**

**Note for Continuing Studies:** If you are a Visiting IUT Student and your application has been approved, you must register in-person, by appointment only (see University Regulations and Resources > Continuing Studies > Registration for Continuing Studies Students > In-Person Registration).

**Revision, June 2011. End of Revision.**

### 1.4.7 Courses Taken under the Satisfactory/Unsatisfactory (S/U) Option

The principle of the Satisfactory/Unsatisfactory (S/U) option is to encourage you to take courses outside the area of your specialization with the view of enabling you to acquire knowledge and skills in a variety of fields.

Where permitted by faculty and program regulations, you may take one elective course per term to be graded under the Satisfactory/Unsatisfactory (S/U) option, to a maximum of 10% of your credits taken at McGill to fulfil the degree requirements.

If you decide to have an elective course graded as Satisfactory/Unsatisfactory (S/U), you must do so before the Course Change deadline on Minerva (www.mcgill.ca/minerva) as part of the Student Menu > Registration Menu > Quick Add or Drop Course Sections Menu. You cannot make any changes after the Course Change deadline even if you selected the option by mistake. If the course is a multi-term course, you must select the S/U option by the Course Change deadline of the first part of the course.

The instructor will report grades in the normal fashion. Grades of A through C are converted to "Satisfactory" (S), and grades of D, F and J are converted to "Unsatisfactory" (U). The courses taken under the S/U option will be excluded from the grade point average (GPA) calculations, but they will be included in the attempted credits total. Credits for courses with a final grade of S will also be included in the number of credits earned.

**Note:** To be considered for in-course awards, including Dean's Honour List designations, and/or the renewal of entrance scholarships, you must complete at least 27 graded credits in the regular academic session, not including courses completed under the S/U option.

**Note:** The S/U option is not available via Minerva to Visiting, Exchange or Quebec Inter-University Transfer Agreement (IUT) students. These students must first contact their home university to ensure that a course taken under the S/U option is acceptable to their home university and that the credits are transferable. After receiving approval from their home university and before McGill's Course Change deadline, they must then consult their McGill faculty Student Affairs Office for approval. Students in the faculties of Arts or Science; you will need to go to the Service Point (3415 McTavish Street) to make this request. However, it is important that you also see a Faculty adviser in Dawson Hall to talk about your options and the effects that your request may have on your studies. For more information, see www.mcgill.ca/students/advising.

**Note:** Special Students are not eligible to select the S/U option.

For further information, contact your departmental adviser or student affairs office, as appropriate.
Note for Engineering:

- You will only be permitted to take a course under the Satisfactory/Unsatisfactory (S/U) option if you are in satisfactory standing.
- B.Eng. and B.S.E. students may use the S/U option for Complementary Studies courses (i.e., Group A Impact of Technology on Society and Group B Humanities and Social Sciences, Management Studies and Law). You cannot use the S/U option for courses in any other category of the Engineering programs. If you choose not to use the S/U option, a grade of D is acceptable as a pass for these Complementary Studies courses.
- B.Sc.(Arch.) students may use the S/U option for elective courses taken outside the School of Architecture. You cannot use the S/U option for courses in any other category of the Architecture program. If you choose not to use the S/U option, a grade of D is acceptable as a pass for these elective courses.
- You cannot use the S/U option for courses that are taken to satisfy a minor.

Note for Law: The S/U option is only applicable to non-Law electives.

Note for Management: The S/U option is not available on Minerva for Management students. Requests for the S/U option can only be made during the official add/drop period. Please contact the BCom Office (www.mcgill.ca/desautels/bcom/contact) for details on the conditions that apply.

Note for Music: Music students may use the S/U option for elective courses taken outside the Schulich School of Music (non-music courses). Please note that the S/U option is not permitted for courses that are taken to satisfy a minor.

1.4.8 Course Change Period

You may make changes to your course registrations (add or drop courses), subject to the requirements and restrictions of your program and individual courses from the opening date of registration until the end of the Course Change period. The Course Change deadline coincides with the deadline for late registration. See www.mcgill.ca/importantdates.

If you drop all Fall courses before the end of August (or drop all Winter courses before the end of December), you will not be registered in that term. If you are a newly admitted student, you may be able to defer your admission (see section 1.4.11: Deferred Admission), or may have to apply for a later term. If you are a returning student and want to register in a later term, you must follow the procedures for readmission (see section 1.4.14: Readmission).

If you drop all Fall courses after the end of August (or drop all Winter courses after the end of December) you are considered University Withdrawn and your transcript will display a notation in that term. Whether you are a newly admitted or returning student, you must follow the procedures for readmission. For more information see section 1.4.14: Readmission.

If you are registered in the Fall term, you may add and drop Winter term courses throughout the Fall term until the Winter term deadline for course change/late registration.

After the Course Change deadline, you may add courses only with written permission of the instructor, and the Associate Dean or Director of your faculty. A fee will be charged for each course you add.

Note for the Faculties of Arts and Science (including B.A. & Sc.): Requests made after the Course Change deadline must be made at the Service Point (3415 McTavish Street). However, it is important that you also see a Faculty adviser in Dawson Hall to talk about your options and the effects that your request may have on your studies. For more information, see www.mcgill.ca/students/advising.

1.4.9 Regulations Concerning Course Withdrawal

After the Course Change deadline in the Fall and Winter terms, there is a period of a few days during which you may withdraw, with a grade of W, and receive a full refund of course fees.

After the Withdrawal (with refund) deadline, there is a period during which withdrawal from a course will also result in a grade of W but no course fees will be refunded.

1.4.9.1 Courses that begin in the Fall Term

Deadline for withdrawal (grade of W) with refund:

- Tuesday, September 20, 2011

Revision, August 2011. Start of revision.

Deadlines for withdrawal (grade of W) without refund:

- Single-term courses: Tuesday, October 18, 2011
- Multi-term courses that begin in Fall term: Tuesday, January 24, 2012

Revision, August 2011. End of revision.
1.4.9.2 Courses that begin in the Winter Term

Revision, August 2011. Start of revision.

Deadline for withdrawal (grade of W) with refund:
- Tuesday, January 31, 2012

Deadline for withdrawal (grade of W) without refund:
- Single-term courses: Tuesday, February 21, 2012
- Multi-term courses that begin in Winter term: Tuesday, May 15, 2012*

Revision, August 2011. End of revision.

*Note that if you are in multi-term courses with course numbers ending in N1 and N2 (course begins in the Winter term, skips the Summer term, and is completed in the subsequent Fall term) you may withdraw after May 15 and until the end of the Fall term Course Change period by contacting your Faculty Student Affairs Office.

After the withdrawal (without refund) deadline but before the end of the term, and only under exceptional circumstances, you may be granted permission to withdraw from a course. Permission will not be granted merely because you are doing unsatisfactory work. A grade of W or WF, as appropriate, will appear on your transcript but will not be calculated in your GPA. For further information, consult your Faculty Student Affairs Office.

Note:
1. To withdraw from required or complementary courses after the withdrawal (without refund) deadline, you may need to obtain permission from your adviser, and you must fill out and submit a course withdrawal form, available from your Faculty Student Affairs Office. Additional restrictions for Music courses are indicated in the Schulich School of Music section of this publication.
2. It is solely your responsibility to initiate a course withdrawal on Minerva. Neither notification of the course instructor nor discontinuing class attendance is sufficient. The date on which you withdrew on Minerva is the official date of withdrawal, even if you had stopped attending lectures earlier.
3. You may still withdraw from a course after the Course Change deadline without academic penalty provided that you do so within the appropriate withdrawal deadlines for the term. Otherwise, after this time, your name will continue to appear on the class list and grade reports and, in the event that you do not take the exam, you will be given a J grade.
4. Fee refunds, if any, will be in accordance with section 1.5.9: Fees and Withdrawal from the University.

Note for the Faculties of Arts and Science (including B.A. & Sc.): Requests are made at the Service Point (3415 McTavish Street). However, it is important that you also see a Faculty adviser in Dawson Hall to talk about your options and the effects that your request may have on your studies. For more information, see www.mcgill.ca/students/advising.

1.4.10 Regulations Concerning University Withdrawal

If you are considering withdrawing from the University, you are strongly encouraged to consult with your adviser and your Student Affairs Office (www.mcgill.ca/students/advising/advisordirectory) before making a final decision.

1.4.10.1 Student’s Responsibility

It is solely your responsibility to initiate University withdrawal by submitting a form or writing to your Student Affairs Office. Neither notification of the course instructor nor discontinuing class attendance is sufficient. The date on which you dropped or withdrew from all courses is entered on Minerva and is the official date of withdrawal, even if you had stopped attending lectures earlier.

Note for the Faculties of Arts and Science (including B.A. & Sc.): Requests are made at the Service Point (3415 McTavish). However, it is important that you also see a Faculty adviser in Dawson Hall to talk about your options and the effects that your request may have on your studies. For more information, see www.mcgill.ca/students/advising.

Revision, August 2011. Start of Revision.

Note for Graduate and Postdoctoral Studies: The date the request for withdrawal is submitted to GPS is the official date of withdrawal.

Revision, August 2011. End of Revision.

1.4.10.2 Regulations Concerning University Withdrawal: Deadlines for University Withdrawal

If you decide not to attend the term(s) you are registered in, you must officially withdraw from the University within the deadlines indicated. See Withdrawal (W) deadline dates at www.mcgill.ca/importantdates. If you drop or withdraw from your last Fall or Winter course by the end of the add/drop period of that term, you are withdrawn from the University. To return to your studies, you must follow the procedures for readmission. For more information, see section 1.4.14: Readmission.
To withdraw from the University by the deadlines indicated below, you must drop or withdraw from all courses on Minerva (www.mcgill.ca/minerva).

1.4.10.2.1 Fall Term:
Revision, August 2011. Start of revision.

Deadline for University withdrawal with refund (minus $200 for returning and the registration deposit for new students): Tuesday, September 20, 2011

Deadline for University withdrawal without refund: Tuesday, October 18, 2011

Revision, August 2011. End of revision.

1.4.10.2.2 Winter Term:
Revision, August 2011. Start of revision.

Deadline for University withdrawal with refund (minus $200 for returning and the registration deposit for new students): Tuesday, January 31, 2012

Deadline for University withdrawal without refund: Tuesday, February 21, 2012

Revision, August 2011. End of revision.

If you are blocked from dropping or withdrawing from your last course on Minerva, you are required to contact your Student Affairs Office, which will supply any forms necessary to complete the University withdrawal as long as you have not missed the deadline for University withdrawal.

Note for the Faculty of Agricultural and Environmental Sciences: If you wish to withdraw after the deadlines indicated above, please contact the Faculty Adviser in the Student Affairs Office for further information.

Note for the Faculties of Arts and Science (including B.A. & Sc.): If you want to withdraw after the deadlines indicated above, under exceptional circumstances you may be granted permission for University withdrawal. Requests are made at Service Point (3415 McTavish Street). However, it is important that you also see a Faculty adviser in Dawson Hall to talk about your options and the effects that your request may have on your studies. For more information, see www.mcgill.ca/students/advising.

Note for the Faculties of Education, Management, and Music: If you want to withdraw after the deadlines indicated above, under exceptional circumstances you may be granted permission for University withdrawal. You should contact your Student Affairs Office (www.mcgill.ca/students/advising/advisordirectory) for further information.

Note for the Faculty of Law: In addition to the above procedures, it is important that you contact the Student Affairs Office to discuss your options and the effects that your request may have on your studies.

Revision, August 2011. Start of revision.

Note for Graduate and Postdoctoral Studies: A Withdrawal Form, available at www.mcgill.ca/gps/students/registration, must be submitted to GPS by the withdrawal deadlines indicated.

Revision, August 2011. End of revision.

1.4.10.3 Regulations Concerning University Withdrawal: Consequences of University Withdrawal

Any applicable fee refunds for the term of withdrawal will be according to section 1.5.9: Fees and Withdrawal from the University.

Once you withdraw, you must return your ID card to the University as stated in section 1.3.7: Identification (ID) Cards.

If you withdraw from the University in the Fall term, you are considered to be withdrawn from the entire academic year, i.e. Fall and Winter terms. If you plan on returning for the Winter term, you must follow the procedures for readmission.

Note: If you withdraw from the University and want to re-register in a later term, you must follow the procedures for readmission, except if you are in the following faculties (in which case you must contact your Student Affairs Office): Music, and Agricultural and Environmental Sciences. See section 1.4.14: Readmission for more information.

Note for the Faculty of Law: You must reapply for admission via the McGill online application process. For more information, see www.mcgill.ca/law-admissions/undergraduates/admissions/how.

1.4.11 Deferred Admission

To defer your offer of admission to McGill you must make an official request no later than August 31 for the Fall term and December 31 for the Winter term, addressed to:

Deferral Coordinator
Enrolment Services
Please note that several conditions apply for deferral. These conditions and deadlines will be communicated to you once the University receives your official request.

If you have accepted your offer of admission and registered for courses and now want to defer your admission, you must withdraw from McGill by dropping those courses via Minerva (www.mcgill.ca/minerva) by the above deadlines and before submitting a deferral request. If the University grants your request for deferral, your registration deposit will be transferred to the deferred term.

If you do not request a deferral by the above deadlines, you will have to reapply for the next available admission term. If you are a registered student and you withdraw after the deadline, you must request readmission through your faculty. For more details, see section 1.4.14: Readmission.

Revision, August 2011. Start of revision.

Note for Music: Applicants to the Schulich School of Music are not eligible to apply for deferred admission.

Note for Law: The Faculty of Law does not normally accept requests for deferred entry. You will be expected to start your course on the date and term you applied for and as indicated on your admission offer letter. If you still wish to seek an admission deferral, you must first accept the offer of admission and pay the $300 deposit. Once the offer of admission has been accepted, you must submit, in writing, a request for the deferral. The request should be addressed to the Assistant Dean (Admissions and Recruitment) and should set out the reason(s) for the request. You are encouraged to submit your request as early as possible in consideration of other candidates.

Revision, August 2011. End of revision.

1.4.12 Summer Term/Summer Studies

McGill Summer Studies offers over 300 credit courses in various disciplines. Courses begin in either May, June or July and are usually one month intensive. These courses may be accepted for transfer credit by other universities. For more details, consult the Summer Studies Calendar at www.mcgill.ca/summer/calendar or contact the Summer Studies Office at 514-398-5212.

If you take a McGill summer course to complete your graduation requirements, you will receive your degree at the Fall Convocation (normally held in November).

It is your responsibility to follow the University and faculty regulations. When registering, you must not exceed the maximum credits permitted by your faculty.

You cannot register for more than 12 credits (Management or Music students, 18 credits) during the summer, at McGill or at other universities, except by special permission of your Associate Dean or Director.

Please note that because the schedule of the courses is very intensive, two courses in one term is a very heavy load. To register for more than one course (or more than two courses in Arts, Education, Engineering, Management and Science), McGill students must obtain written permission from their faculty, Visiting students from both their home university and the faculty in which they are registered, and Special students from the faculty in which they are registered.

Quebec Inter-University Transfer (IUT) students may take, in one summer term, a maximum of one course regardless of credit weight. Permission to register for more than one course per term must be obtained from the McGill faculty in which the student is registering by using the CREPUQ electronic IUT site at www.crepuq.qc.ca (see section 1.4.6: Quebec Inter-University Transfer Agreement: Visiting IUT Students).

1.4.13 Inter-Faculty Transfer

If you are a McGill student, have not graduated and want to transfer into another undergraduate faculty, you may apply using the Minerva Faculty Transfer/Readmission Menu (www.mcgill.ca/minerva), unless otherwise indicated in the table below.

You must also refer to your faculty website for faculty-specific rules and to determine what supporting documents must be submitted for your application. To access the faculty websites, and for more information on faculty transfers, please see www.mcgill.ca/student-records/inter-faculty-transfers.

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<td>Architecture</td>
<td>Contact the Student Affairs Adviser at 514-398-6702 or email <a href="mailto:mary.lanni@mcgill.ca">mary.lanni@mcgill.ca</a></td>
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### Revision, August 2011. Start of revision.

**Law**
- There are no transfers into Law.
- Contact the Faculty of Law Admissions Office for more information at 514-398-6602 or undergradadmissions.law@mcgill.ca.

### Revision, August 2011. End of revision.

**Management**
- There are no Winter term transfers into Management.
- June 1

**Music**
- There are no Winter term transfers into Music.
- January 15

**Nursing**
- August 15
- December 15

**Physical and Occupational Therapy**
- There are no Winter term transfers into Physical and Occupational Therapy.
- June 1

**Religious Studies**
- June 1
- November 1

**Science, B.A. & Sc.**
- May 15
- November 1

### 1.4.14 Readmission

To return to McGill after an absence from a Fall and/or Winter term of an academic year, you must submit an application for readmission using Minerva's Faculty Transfer/Readmission Menu (www.mcgill.ca/minerva). In your application, state the reasons for your absence from the University and give a summary of your activities during that period.

If you withdrew because of illness, you must provide your Faculty Student Affairs Office with a medical note to support your application for readmission, stating that you are ready to resume studies.

You must be aware of McGill's time limits for the completion of degrees.

To return to a different faculty after an absence, apply for a faculty transfer using Minerva's Faculty Transfer/Readmission Menu. For more details on the faculty transfer or readmission process, see www.mcgill.ca/student-records/inter-faculty-transfers.
Note for Music students: If you need more information about the re-audition regulations contact the Music Student Affairs Office at studentaffairs.music@mcgill.ca.

Revision, August 2011. Start of revision.

Note for Law students: Candidates who were required to withdraw from the Faculty of Law may be authorized by the Faculty Admissions Committee to continue their studies if exceptional reasons for the withdrawal exist.

Revision, August 2011. End of revision.

1.4.15 Auditing of Courses

McGill does not permit auditing of courses.

Revision, June 2011. Start of Revision.

Note for Continuing Studies: You can register for a Continuing Studies course and opt to have it "non-evaluated".

Revision, June 2011. End of Revision.

1.5 Fees

Revision, August 2011. Start of revision.

The information in this publication was updated in early August 2011. The University reserves the right to make changes without notice in the published scale of fees.

Further information regarding fees can be found on the Student Accounts website: www.mcgill.ca/student-accounts. For information on financial support, see section 1.9: Scholarships and Student Aid.

Revision, August 2011. End of revision.

1.5.1 Access to Fee Information

You can view your Account Summary by Term on Minerva. The Fall 2011 term fees will be accessible as of August 1.

1.5.2 Tuition Fees

Revision, August 2011. Start of revision.

Tuition rates are subject to change each academic year. Please access the Schedule of Fees at www.mcgill.ca/student-accounts. The 2011-2012 schedule of fees is updated as soon as the rates are known.

Revision, August 2011. End of revision.

1.5.2.1 Quebec Students and Non-Quebec Students (Canadian or Permanent Resident)

Revision, August 2011. Start of revision.

In accordance with provincial government requirements, students must provide proof that they qualify for assessment of fees at the Quebec or non-Quebec Canadian rates; see www.mcgill.ca/legaldocuments for details. In certain cases, non-Quebec Canadian students pay the same rate of tuition as Quebec students – for further information about these exceptions, see the Student Accounts website under Tuition and Fees > General Information.

Note: Students who are required to submit appropriate documentation and do not do so by the stipulated deadlines (December 1st - Fall; April 1st - Winter) are billed at the non-Quebec Canadian or the international rate, depending on the documentation submitted. Should your tuition status be changed during the evaluation period, any late payment and/or interest charges accumulated on the difference between the Quebec and Canadian tuition rates will also be waived.

Revision, August 2011. End of revision.

1.5.2.2 International Students

Revision, August 2011. Start of revision.

Exemption from International Tuition Fees may be claimed by students in certain categories. Such students, if eligible, are then assessed at the Quebec student rate (certain categories may be assessed at the Canadian tuition rate). These categories and the required documentation for each of them, may be
viewed at www.mcgill.ca/legaldocuments. Further information regarding these reductions of International Tuition Fees by the Quebec government is available on the Student Accounts website under Tuition and Fees > General Information.

For more information concerning Fee Exemptions, contact Service Point at www.mcgill.ca/students/records/contact.

Revision, August 2011. End of revision.

1.5.2.3 Tuition Assistance for McGill Staff

McGill staff may be entitled to a tuition waiver equivalent to 100% of the portion of eligible tuition fees. For complete details, refer to the policies and procedures found at www.mcgill.ca/benefits/forms. Here you can complete an online request form as you register. Should you not successfully complete the courses as detailed in the policy, the exemption will be cancelled and you will be required to pay these fees according to regular payment deadlines.

1.5.2.4 Staff Dependent Waivers

Students who are dependents of staff members or pensioners may qualify for a fee reduction. You may download the application form from www.mcgill.ca/benefits/forms and forward the completed form to Enrolment Services.

Revision, June 2011. Start of revision.

Note for Continuing Studies Students: This form can also be forwarded to the Client Services Office of the School of Continuing Studies as appropriate.

Revision, June 2011. End of revision.

The fee reduction will be credited to your McGill fee account once eligibility has been confirmed and all appropriate signatures have been obtained. This fee reduction will be reflected in a T4A slip issued in February by the University.

For more information, refer to the MUNACA Collective Agreement, or the Staff Dependent Policy at www.mcgill.ca/adminhandbook/personnel/stafftuition.

1.5.3 Compulsory Fees

Rates are updated and available on the Student Accounts website, www.mcgill.ca/student-accounts, as soon as they become available.

1.5.3.1 Student Services Fees

Student Services fees are governed by the Senate Committee on the Coordination of Student Services, a parity committee composed equally of students and University staff.

These fees are complemented by revenue from the Quebec government, the University, and numerous generous donors, to support the following programs and services: Student Health (including Dental), Mental Health, Counselling and Tutorial, Chaplaincy, Career Planning (CaPS), Student Aid and International Student Services, the Office for Students with Disabilities, First-Year Office (including the Francophone Assistant), Off-Campus Housing, and the First Peoples' House.

1.5.3.2 Athletics and Recreation Fee

The Athletics and Recreation fee supports programs offered on the downtown and Macdonald campuses. The fee provides access to most athletics facilities, however registration to fitness and recreation courses, intramural sports, pay-as-you-go programs or the Fitness Centre carries a supplemental charge. Please consult the Athletics and Recreation website at www.mcgill.ca/athletics for further information.

1.5.3.3 Student Society Fees

Student Society fees are collected on behalf of student organizations and are compulsory. These fees must be approved by the student body through fee referenda according to the constitutional rules of the association or society.

Students may vote on changes to Student Society fees during either the Spring or Fall referendum periods.

For Canadian students, the Student Society fees include health and dental insurance. For international students, the Student Society fees include a dental insurance plan. International students are required to participate in the University's compulsory International Health Insurance (IHI) plan. For more information, please visit International Health Insurance at www.mcgill.ca/internationalstudents/health.

Rates for the current year may be found at www.mcgill.ca/student-accounts.

1.5.4 Administrative Charges

The University charges a number of administrative fees to students which include:

Registration Charge - All students in courses and programs are assessed a registration fee.

Information Technology Charge - The purpose of the information technology fee is to enhance certain technology services provided to students as well as to provide training and support to students in the use of new technology.
Transcripts and Diploma Charge - The University charges a transcripts and diploma fee to all students which entitles you to order transcripts free of charge as well as covers the costs of your graduation.

Copyright Fee - All students in courses and programs are charged the copyright fee which covers the cost of the annual fee that all Quebec universities are required to pay to Copibec (a consortium that protects the interests of authors and editors) for the right to photocopy materials protected by copyright.

Revision, August 2011. Start of revision.

General Administrative Charge - As per the Quebec government’s regulation on administrative fee increases, students are assessed $15.00 in the Summer term and a total of $30.00 for the Fall and Winter terms to cover indexation for the Registration Charge, the Information Technology Charge, Transcripts and Diploma Charge, and the Copyright Fee. A portion of this amount (up to $3.00 per year) is directed to Athletics. As a result, students may see a decrease in their General Administrative Charge to take into account their additional contribution to Athletics.

Revision, August 2011. End of revision.

You may access the schedule of fees on www.mcgill.ca/student-accounts.

1.5.5 Other Fees

Revision, August 2011. Start of revision.

International Student Health and Accident Plan (compulsory, rates as of 2011-2012)

<table>
<thead>
<tr>
<th>Type</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>$651</td>
</tr>
<tr>
<td>Dependent (one student with one dependent)</td>
<td>$1,869</td>
</tr>
<tr>
<td>Family (one student with two or more dependents)</td>
<td>$3,549</td>
</tr>
</tbody>
</table>

Revision, August 2011. End of revision.

Application for Admission

<table>
<thead>
<tr>
<th>Type</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate programs*</td>
<td></td>
</tr>
<tr>
<td>Students applying for Fall 2011</td>
<td>$85</td>
</tr>
<tr>
<td>Students applying as of Winter 2012</td>
<td>$100</td>
</tr>
</tbody>
</table>

* Note that for registered students, the Undergraduate Application Fee is partially refunded at the end of the first term as follows:
Students applying prior to and including Fall 2011: $25 (CEGEP applicants) or $5 (all non-CEGEP applicants).
Students applying as of Winter 2012: $40 (CEGEP applicants) or $20 (all non-CEGEP applicants).

Revision, August 2011. Start of revision.

Undergraduate Admission appeals charge $100

All Graduate programs*** $100

Revision, August 2011. End of revision.

Late Registration

After regular registration deadline:
All eligible returning students, except Special students and Graduate part-time and additional session students. $100

Special students and Graduate part-time and additional session students. $50

As of the second day of classes:

All students except Special students and Graduate part-time and additional session students. $150

Special students and Graduate part-time and additional session students. $75

<table>
<thead>
<tr>
<th>Fee Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late Course Change Fee</td>
<td>$50</td>
</tr>
<tr>
<td>Registration Cancellation Fee upon withdrawal (or if newly admitted students, the deposit)</td>
<td>$200</td>
</tr>
<tr>
<td>Rereading Examination Paper (refundable if the letter grade is increased)</td>
<td>$35</td>
</tr>
<tr>
<td>Supplemental Examinations, each written paper</td>
<td>$35</td>
</tr>
<tr>
<td>Duplicate ID Card</td>
<td>$25</td>
</tr>
<tr>
<td>Late Payment charged on balances &gt; $100 as of the end of October (end of February for the Winter term)</td>
<td>$50</td>
</tr>
<tr>
<td>Interest on outstanding balances (rate determined in February, to be applicable on June 1, is 1.24% monthly or 14.88% annually)</td>
<td>$50</td>
</tr>
<tr>
<td>Returned cheque or Pre-Authorized Debit payment **</td>
<td>$35</td>
</tr>
<tr>
<td>** Please note that the $35 fee for returned cheques and pre-authorized debit payments is in addition to the value of the amount debited for the returned item in question. For transactions in Canadian dollars, the amount debited is the same as the amount paid. For transactions in other currencies, including pre-authorized debit payments in US dollars, accounts will be debited at the exchange rate charged by the bank to the University. This sometimes represents a significant difference from the amount originally paid, depending on the rate of exchange on the date of the return.</td>
<td></td>
</tr>
<tr>
<td>Cheque Refund charge:</td>
<td></td>
</tr>
<tr>
<td>on balances less than $100</td>
<td>$5</td>
</tr>
<tr>
<td>on balances $100 and over</td>
<td>$10</td>
</tr>
<tr>
<td>Schulich School of Music Fees:</td>
<td></td>
</tr>
<tr>
<td>Audition Fee</td>
<td>$60</td>
</tr>
<tr>
<td>Late Music Placement Examination Fee</td>
<td>$50</td>
</tr>
</tbody>
</table>
Late application fee for Music Performance examination (requires the permission of the Chair of the Department of Performance) $50

Supplemental Practical Examination in Music $150

Music Private Lessons Fee (MUIN, MUPG subject code courses) $500

Music Practical Instruction: part-time or Special student status, or 2nd instrument or voice, or in excess of quota; 1 hr/wk lessons $785

Music Practical Instruction: part-time or Special student status, or in excess of quota; 1.5 hr/wk lessons (Artist Diploma) $1,175

Music Practical Instruction: Special student status; Opera Studio $680

Music Practical Instruction: part-time or Special status, or in excess of quota; Voice Coaching $550

Reinstatement penalty $150 (see Cancelling Registration for Non-Payment in section 1.5.10: Other Policies Related to Fees: Overdue Accounts)

Revision, August 2011. Start of Revision.

Note for Graduate and Postdoctoral Studies: *** All students making application to Graduate and Postdoctoral Studies are required to pay this fee, including those already registered at McGill. If a department or an applicant defers an admission within the following year, the application fee need not be paid again.

Revision, August 2011. End of Revision.

1.5.6 Billings and Due Dates: Confirmation of Acceptance Deposit

When you are admitted to the University, you are required to confirm your acceptance of the offer of admission on Minerva under the Applicant Menu at www.mcgill.ca/minerva and you must pay the required deposit (may vary by program) by credit card (AMEX, Visa or MasterCard) at that time.

1.5.7 Billings and Due Dates: Invoicing of Fees

Fees are assessed on a term-by-term basis.

Electronic billing is the official means of delivering fee statements to all McGill students. Your e-bill includes all charges to your account, including tuition, fees, health insurance and miscellaneous charges. The University generally produces e-bills at the beginning of the month and sends an email notification to your official McGill email address stating that your e-bill is available for viewing on Minerva (www.mcgill.ca/minerva). Charges or payments that occur after the statement date appear on the next month’s statement, but you can view them immediately on the Account Summary by Term under the Student Accounts Menu on Minerva (this is the online dynamic account balance view).

Failure to check email on a regular basis in no way warrants the cancellation of interest charges and/or late payment fees. Refer to the Student Accounts website at www.mcgill.ca/student-accounts for information on payment due dates.

<table>
<thead>
<tr>
<th>Term</th>
<th>Payment Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Term</td>
<td>August 31, 2011</td>
</tr>
</tbody>
</table>

Returning students
Term | Payment Due Date
---|---
Students new to the University in Fall | September 30, 2011

### Winter Term

<table>
<thead>
<tr>
<th></th>
<th>Payment Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Returning students</td>
<td>January 5, 2012</td>
</tr>
<tr>
<td>Students new to the University in Winter</td>
<td>January 31, 2012</td>
</tr>
</tbody>
</table>

Revision, August 2011. Start of revision.

**Late Payment Fees:** If you have an outstanding balance greater than $100 on your account on October 31 (February 29 for the Winter term), you are charged a late payment fee of $50 over and above interest.

Revision, August 2011. End of revision.

1.5.8 **Billings and Due Dates: Guest Access on Minerva**

You may choose to give access privileges to a guest on Minerva. These privileges include viewing e-bills/account summaries, tax receipts and e-payment. The [www.mcgill.ca/student-accounts](http://www.mcgill.ca/student-accounts) web page describes how to set up this access. You must provide certain information about the individual you wish to grant access to your fee-related information. The guest will be contacted by email and provided with a link to use within a designated time period. You can cancel guest access privileges at any time.

Note that Service Point staff may respond to questions from your authorized guest regarding the information to which they have been given access. If you do not want to give a guest access privileges to Minerva, you can enter an alternative student billing email address on Minerva to which Student Accounts will send a copy of the monthly e-bill notification. However, if someone has been granted access as a guest and their guest email is the same as a student billing email address, the University will deactivate the student billing email address in order to only notify your guest about the billings once. You should NOT share your PIN (personal identification number) with anyone, including a guest on Minerva. Guest Access allows your guest to view your account information without knowing your PIN.

1.5.9 **Fees and Withdrawal from the University**

If you decide not to attend the term(s) in which you are registered, you must officially withdraw from the University in accordance with section 1.4.10: Regulations Concerning University Withdrawal. Otherwise, you are liable for all applicable tuition and other fees.

If you use Minerva to drop your last course between September 1 (January 1 for the Winter term) and the end of the withdrawal period with full refund, you will be deemed withdrawn from the University. You are automatically charged a registration cancellation fee of $200 (or your registration deposit fee, whichever is higher) to cover administrative costs of registration.

If you stop attending classes without dropping your courses, you are liable for all applicable tuition and other fees. See section 1.4.10: Regulations Concerning University Withdrawal.

1.5.9.1 **Fee Refund Deadlines**

The deadline dates for course refunds are independent of the deadline dates given for withdrawal from courses.

Revision, August 2011. Start of revision.

Note for Graduate and Postdoctoral Studies: See the [Summer Registration](http://www.mcgill.ca/gradpostdoc) section of the Graduate and Postdoctoral Studies Programs, Courses and University Regulations publication for information about fee refund after withdrawal from a Summer Term of Residence for newly-admitted graduate students only.

Revision, August 2011. End of revision.

1.5.9.1.1 **Fall Term – up to and including September 20:**

Returning students – 100%* refund (less registration cancellation fee of $200 in the case of complete withdrawal).

New students – 100%* refund (less registration deposit or $200, whichever is higher).

1.5.9.1.2 **Fall Term – after September 20:**

No refund.
1.5.9.3 **Winter Term – up to and including January 31:**

**Revision, August 2011. Start of revision.**

Returning students – 100%* refund (less registration cancellation fee of $200 in the case of complete withdrawal).

New students – 100%* refund (less registration deposit or $200, whichever is higher).

**Revision, August 2011. End of revision.**

1.5.9.4 **Winter Term – after January 31:**

**Revision, August 2011. Start of revision.**

No refund.

* Includes tuition and compulsory student fees

If you want to discuss the refund policy applicable to a special case, contact your faculty Student Affairs Office (Associate Dean or Director).

**Revision, August 2011. End of revision.**

1.5.9.2 **Refund Procedures**

You are not automatically refunded your credit balance as many students choose to keep the balance on account for use for a future term. You may however request your credit balance to be refunded at any time, after the course withdrawal with full refund period has passed. For directions on requesting your refund online in Minerva, see [www.mcgill.ca/student-accounts](http://www.mcgill.ca/student-accounts).

1.5.10 **Other Policies Related to Fees: Overdue Accounts**

All tuition and fees assessed by the University must be paid in full or arrangements must be made to settle the debt.

Students' accounts are considered delinquent if they are not paid in full within 60 days after the bill is issued. McGill places a financial hold on these accounts, preventing students from obtaining official academic transcripts and from accessing Minerva for any registration functions.

**Revision, August 2011. Start of revision.**

**Interest:** Interest is charged on overdue balances at the monthly rate of 1.24%, multiplied by the balance outstanding at the end of the month (14.88% annually). The rate is evaluated each Spring, and then is set for the following academic year.

**Revision, August 2011. End of revision.**

* Note: You should regularly verify your account balance on Minerva.

The University has no obligation to issue any transcript of record, award any diploma, or re-register a student if you do not pay your tuition fees, library fees, residence fees or loans by their due date.

1.5.10.1 **Information for Registered Students**

If you register for a term but still owe amounts from previous terms, you must either pay your account or make payment arrangements with the Student Accounts Office before the end of the course add/drop period. If you have financial difficulty, first contact the Student Aid Office (Brown Student Services Building, Room 3200; 514-398-6013) to discuss the possibility of obtaining financial aid.

If you fail to pay the previous term's fees or to make arrangements to settle your debt prior to the add/drop deadline, the University will cancel your registration in the current and subsequent terms.

1.5.10.2 **Information for Students who are No Longer Registered**

When students fail to settle their debt or reach a suitable payment arrangement, or fail to provide the Student Accounts Office with up-to-date contact information, the University refers these delinquent accounts to a collection agency. **If neither the University nor the collection agency is able to collect on the account, the University reserves the right to have the student reported to a credit bureau.** You should be aware that the University is entitled to use all legal means to obtain payment and that students are responsible for all costs associated with such actions.

1.5.10.3 **Cancelling Registration for Non-Payment**

In accordance with the fee policy stated in Overdue Accounts, the Student Accounts Office will make all reasonable efforts to notify you if your account is delinquent, or if you owe more than $100 from the previous term, before the University cancels your registration for non-payment. The cancellation is effective the last day of the add/drop period unless you settle the account or make payment arrangements with the University by then. If you pay or make payment arrangements with the Student Accounts Office after the add/drop deadline and you want the University to reinstate your registration for the current or subsequent term(s), you must complete the [Request for Reinstatement form](http://www.mcgill.ca/student-accounts) and submit it to the Student Accounts Office, which will forward it to Enrolment Services for approval and processing. Your fee account will be charged $150 (Reinstatement Penalty) for the processing of the re-enrolment.
1.5.11 Other Policies Related to Fees: Acceptance of Fees vs Academic Standing

Acceptance of fees by the University in no way guarantees that students will receive academic permission to pursue their studies. If it is subsequently determined that your academic standing does not permit you to continue, all fees paid in advance will be refunded.

For directions on requesting your refund online in Minerva, see www.mcgill.ca/student-accounts.

1.5.12 Other Policies Related to Fees: Fees for Students in Two Programs

Students in two programs normally are billed additional fees for their second program. Depending on the level of the two programs (e.g., one at the undergraduate versus one at the graduate level), you may incur both society and faculty fees and/or additional tuition fees. Consult the Student Accounts website at www.mcgill.ca/student-accounts for further details.

You should consult the Student Accounts Office at student.accounts@mcgill.ca for information on tuition fees. Adjustments to bills are made throughout the term in cases where fees cannot be automatically calculated.

1.5.13 Other Policies Related to Fees: Quebec Inter-University Transfer Agreements

If you are taking courses as part of the Quebec Inter-University Transfer (IUT) agreement, you are required to pay the fees at your home university; see section 1.4.5: Quebec Inter-University Transfer Agreement: McGill Students. The agreement covers only the transfer of academic credits.

International students in undergraduate programs are not usually permitted to take IUT courses.

IUT students taking courses at McGill are required to pay additional course charges that are compulsory upon registration, such as special activity charges or course material costs.

The University reserves the right to refuse course registrations in non-government-funded activities.

1.5.14 Other Policies Related to Fees: Senior Citizens

Financial aid is available for students in need who are aged 65 or over and who are enrolled in full-time degree programs. Contact the Scholarships and Student Aid Office for more information at 514-398-6013.

1.5.15 Sponsorships/Awards/Fee Deferrals

1.5.15.1 Students with Sponsors

Revision, August 2011. Start of revision.

If your fees will be paid by an outside agency such as the Department of Veterans Affairs, CIDA, or a foreign government, you must have written proof of this sponsorship. Your sponsor must confirm the conditions of their sponsorship in writing on company letterhead to the University. This allows the University to initiate a contract with your sponsor and make the payment to your fee account. You need to notify the University at least one month before the beginning of the term in which the contract takes effect. For more information and the required forms, see www.mcgill.ca/student-accounts.

When a third party agrees to pay fees on your behalf, payment is recorded on the fee account, which reduces the balance you must pay. The University reserves the right to insist upon payment. If the third party does not pay the promised fees within 90 days of invoicing, you are responsible for paying the fees plus the late payment fee and accrued interest.

Revision, August 2011. End of revision.

1.5.15.2 Students Receiving McGill Awards

Revision, August 2011. Start of revision.

Student awards may be paid directly to your student fee account or direct deposited to your bank. Please verify the payment schedule and the method of payment on Minerva's Financial Aid/Awards menu if you are expecting a scholarship or award.

Please note that credit balances in student fee accounts that result from payment from scholarships and awards are refundable only after the official course add/drop period for each term.

Revision, August 2011. End of revision.

1.5.15.3 External Scholarships

Revision, August 2011. Start of revision.

You may also receive external scholarships from other organizations, outside agencies, parents’ employers, or community groups. These awards are typically sent directly to the University. You should provide the Student Accounts Office with a letter from the external body indicating the details and requirements of how the scholarship funds should be distributed, including any conditions for the award. If such information is not specified, the amount of the scholarship will be split into two terms and will be credited to your account as soon as you have registered, with the second instalment credited the first working day in January. If you do not meet the requirements of the scholarship, the funds will be returned to the external body.
You may need an anticipated scholarship to reduce your balance owing for a given term. If so, email student.accounts@mcgill.ca with “External Scholarships” in the subject line, at least one week before the fee deadline as stated on the e-bill, and indicate the amount, currency (Canadian or US dollars) and agency or company issuing the scholarship. A fee deferral for the expected amount will reduce the amount owed. The deferral will expire by the end of September for the Fall term or January for the Winter term. Interest will be assessed at the prevailing rate on outstanding amounts beyond the deferral deadline.

Revision, August 2011. End of revision.

1.5.15.4 Tuition & Fees – Payment Deferral

Revision, August 2011. Start of revision.

Students with no prior outstanding tuition/fees may request that payment(s) of tuition and fees be deferred based on self-reported demonstrated sources of funding from the University, government or other external agencies. Such requests will be granted on a term by term basis during which time no interest or late payment charges will be applied on the fees covered by the deferral. The length of time that a fee deferral is in effect will depend on the nature of the fee deferral. For the list of deferrals and their duration, please refer to the Student Accounts website.

Students may apply for a fee deferral via “Defer Payment of Tuition and Fees” through the Financial Aid/Awards menu on Minerva, selecting the category applicable to their situation. All applicants will be verified to ensure they have self-reported their situation accurately.

The Minerva application for deferral of tuition fees form is available in mid-July for the Fall term (mid-December for the Winter, and early April for the Summer). Students who apply up to the fee deadline can be assured that the deferral will be in effect prior to interest being charged on their account. Note that students who apply late may not request cancellation of interest.

A fee deferral generally covers the amount of the Fall (Winter or Summer) term charges, which include tuition, administrative and certain academic fees, and health and dental insurance. Charges not covered by the tuition deferral include, but are not limited to, housing charges, meal plans, printing charges, or any other amounts owing that are not considered registration charges. Interest on outstanding already-billed amounts will continue to be charged on a monthly basis excluding amounts covered by the student aid tuition deferral.

Students are reminded that tuition and student housing fees have first call upon financial aid received from any source.

Revision, August 2011. End of revision.

1.5.16 Other Information: Payment Procedures

Please see the Student Accounts website at www.mcgill.ca/student-accounts for the various methods of payment available to students and their guests.

1.5.17 Other Information: Tax Slips/Receipts

T4A (RL-1); T2202A and Relevé 8 slips are issued on Minerva (www.mcgill.ca/minerva) under the Student Accounts Menu by the end of February each year. Note that a social insurance number and a valid mailing address are required to be transmitted to Revenu Québec by the University as part of its tax reporting for both the T4A and the Relevé 8 slip, therefore it is highly recommended that if you expect to be completing a Quebec income tax return, you provide this information to the University upon registration. More information on these slips is available on www.mcgill.ca/student-accounts.

1.5.18 Yearly Fees and Charges by Faculty

Tuition fees at the undergraduate level are based on the number of credits you take.

Please consult the Student Accounts website at www.mcgill.ca/student-accounts for tables of fees by residency status and faculty.

1.6 Student Records

Students must inform themselves of University rules and regulations and keep abreast of any changes that may occur. The Student Records section of this publication contains important details pertaining to academic standing, grading and grade point averages (GPA), transcripts, as well as other topics, and should be periodically consulted.

1.6.1 Academic Standing

You enter the University in satisfactory standing, and your academic standing is determined soon after the end of a term based on your faculty's regulations. Standing codes are generated in January for the Fall term, in May for the Winter term, and in September for the Summer term, and are displayed on your McGill official and unofficial transcripts. If you receive unsatisfactory standing, you must apply to your faculty for readmission. Consult the appropriate section of this publication for the regulations on academic standing for your faculty.

Revision, June 2011. Start of Revision.

Note for Continuing Studies: If you are in unsatisfactory standing, you must apply to the Appeals Committee of your academic area.

Revision, June 2011. End of Revision.
1.6.1.1 Academic Standing: Faculties of Arts and Science (including B.A. & Sc.)

Your academic standing is based primarily on your cumulative grade point average (CGPA), but may also be affected by your term grade point average (TGPA). The standing in each term determines if you are allowed to continue your studies in the next term, and if any conditions will be attached to your registration.

Decisions about academic standing in the Fall term are based only on grades that are available in January, i.e., if you have deferred examinations or Fall/Winter spanned courses, grades for those courses don't affect your Fall academic standing – they will only affect your Fall TGPA. Therefore, academic standings for the Fall term are designated as interim. Note that interim standings do not appear on your official transcript. Consult the appropriate section of this publication for the regulations on Interim standing decisions.

1.6.1.1.1 Satisfactory/Interim Satisfactory Standing: Faculties of Arts and Science (including B.A. & Sc.)

If you are in interim satisfactory or satisfactory standing:

- you may continue in your program;
- you have a CGPA of 2.00 or greater.

1.6.1.1.2 Probationary/Interim Probationary Standing: Faculties of Arts and Science (including B.A. & Sc.)

If you are in interim probationary standing (at the end of the Fall term):

- you may continue in your program;
- you should evaluate your course load and reduce it as appropriate;
- you are strongly advised to consult a departmental adviser, before withdrawal deadlines about your course selection for the Winter term;
- you should see your Faculty adviser to discuss degree planning.

If you are in probationary standing:

- you may continue in your program;
- you must carry a reduced load (maximum 14 credits per term);
- you must raise your CGPA to return to satisfactory standing;
- you should see your departmental adviser about your course selection;
- you should see your Faculty adviser to discuss degree planning.

You will be placed in probationary standing:

- if your CGPA falls between 1.50 and 1.99 and if you were previously in satisfactory standing;
- if your CGPA falls between 1.50 and 1.99 and your TGPA in Fall or Winter is 2.50 or higher, and if you were previously in probationary or interim unsatisfactory standing;
- if you were previously in unsatisfactory readmitted standing and have satisfied the relevant conditions specified in your letter of readmission, but your CGPA is still less than 2.00.

1.6.1.1.3 Unsatisfactory Readmitted Standing: Faculties of Arts and Science (including B.A. & Sc.)

If you are in unsatisfactory readmitted standing:

- you were previously in unsatisfactory standing and were readmitted by your Faculty or the Committee on Student Standing;
- you must meet the conditions specified in your letter of readmission to be allowed to continue in your program;
- you should see your departmental adviser to discuss your course selection;
- you should see your Faculty adviser to discuss degree planning.

1.6.1.1.4 Unsatisfactory/Interim Unsatisfactory Standing: Faculties of Arts and Science (including B.A. & Sc.)

If you are in interim unsatisfactory standing (at the end of the Fall term):

- you may continue in your program;
- you should evaluate your course load and reduce it as appropriate;
- you are strongly advised to consult an academic adviser, before withdrawal deadlines, about your course selection;
- you should see your Faculty adviser to discuss degree planning.

If you are in unsatisfactory standing:

- you have failed to meet the minimum standards set by the faculties;
- you may not continue in your program, and your registration will be cancelled.

You will be placed in unsatisfactory standing:
• if your CGPA falls or remains below 1.50;
• if your TGPA in the Fall or Winter falls below 2.50 and your CGPA is below 2.00 and if you were previously in probationary, unsatisfactory readmitted, or interim unsatisfactory standing;
• if you were previously in unsatisfactory standing and were readmitted by the Faculty or the Committee on Student Standing but have not satisfied the conditions specified in the letter of readmission.

Appeals for readmission by students in unsatisfactory standing should be received no later than July 15 for readmission to the Fall term, November 15 for the Winter term, and June 10 for the Summer term. Readmission will be considered only when proof of extenuating circumstances that affected academic performance can be provided (e.g., medical or other documentation). If you are in unsatisfactory standing for the second time, you must withdraw permanently.

Normally, supplemental examinations are not permitted; however, if you are in unsatisfactory standing, you may appeal for permission to write a supplemental examination, clearly stating the reasons for special consideration and providing proof as appropriate.

Appeals for readmission or permission for supplemental examinations must be submitted to:
• Arts: Associate Dean (Student Affairs)
• Science and B.A. & Sc.: Director of Advising Services

**Note for students in the Concurrent B.Sc.-B.Ed. Program:** If you receive an F or J in any Education Field Experience course, you are placed in unsatisfactory standing. Although you may complete your term, you are required to withdraw from the Concurrent Program. However, you may apply to transfer to a conventional B.Sc. program as outlined under Faculty of Science > Science or Mathematics for Teachers.

### 1.6.1.1.5Incomplete Standings: Faculties of Arts and Science (including B.A. & Sc.)

- Standing awaits deferred exam.
- Must clear K's, L's or Supplementals.
- Standing Incomplete.

If you are a student with an incomplete standing (in the Winter or Summer term):

- you may register for the Fall term, but your standing must be resolved by the end of the course change period for that term;
- you may continue in the program if incomplete standing changes to satisfactory, probationary, or interim unsatisfactory standing;
- you may not continue in your program and your registration will be cancelled if standing changes to unsatisfactory standing.

If your standing changes to unsatisfactory:

- you may ask for permission to continue in your program;
- you must make a request for readmission as soon as you are placed in unsatisfactory standing;
- you must provide proof of extenuating circumstances that affected your academic performance (e.g., medical or other documentation).

Requests for readmission following an unsatisfactory standing must be submitted to:
• Arts: Associate Dean (Student Affairs)
• Science and B.A. & Sc.: Director of Advising Services

If your standing is still incomplete by the end of course change period, you should immediately consult with your Faculty Student Affairs Office.

At the end of the Winter term, if you have a mark of K or L, you will be placed in the appropriate standing in June, if the outstanding mark in the course will not affect your standing. Otherwise, standing decisions will be made only once incomplete marks have been cleared. For more information about incomplete grades, please refer to Incomplete Courses.

**Note:** Requests are made at the Service Point (3415 McTavish Street). However, it is important that you also see a Faculty adviser in Dawson Hall to talk about your options and the effects that your request may have on your studies. For more information, see www.mcgill.ca/students/advising.

### 1.6.1.2 Academic Standing: Faculty of Engineering

In the Faculty of Engineering, a decision on your academic standing is determined on the basis of your Cumulative Grade Point Average (CGPA) according to the criteria listed below.

**Note:** The Faculty determines academic standing decisions after the completion of each term (Fall, Winter, Summer) based on grades obtained up to that point. If you have been granted permission to defer one or more examinations, the academic standing decision will be made disregarding the deferred exam grade.

#### 1.6.1.2.1 Satisfactory Standing: Faculty of Engineering

You are in satisfactory standing if you have a CGPA of 2.00 or greater.

You may continue with your studies under the following conditions:
• If you obtained a grade of D or F in a core course, you must repeat the course successfully (grade of C or better) or replace it with an alternative approved course and successfully complete the course.
• If you obtained a grade of F in any other course, you must either repeat the course successfully before graduation or replace it with an alternative approved course and successfully complete the course before graduation.

1.6.1.2.2 Probationary Standing: Faculty of Engineering

You are in probationary standing if you have EITHER:

- a CGPA that is less than 2.00 and equal to or greater than 1.20
- a TGPA that is equal to or greater than 2.50 and a CGPA that is less than 2.00.

You may continue with your studies under the following conditions:

- You must reduce your credit load to a maximum of 13 credits per term and must obtain, at the end of the term, either a CGPA of 2.00 or greater or a TGPA of 2.50 or greater.
- If you have a TGPA of 2.50 or greater, but you have a CGPA that is less than 2.00, you may continue with your studies but you will remain in probationary standing until you obtain a CGPA of 2.0 or greater.
- If you do not obtain either the TGPA or CGPA noted above, you will be placed in unsatisfactory standing.
- You must consult a faculty or departmental adviser before withdrawal deadlines concerning your course selection.

1.6.1.2.3 Unsatisfactory Standing: Faculty of Engineering

You are in unsatisfactory standing if you have EITHER:

- a CGPA that is less than 1.20
- a TGPA that is less than 2.50 and a CGPA that is less than 2.00.

If at any time, you were placed in unsatisfactory standing and were readmitted to the Faculty of Engineering after one term away, and you are placed in unsatisfactory standing again at the end of any subsequent term, you may not continue in your program. You will be asked to withdraw from the Faculty of Engineering for a minimum of one term or permanently, based on the conditions of your last letter of readmission.

If you are in unsatisfactory standing for the first time, the regulations below apply.

Students in interim unsatisfactory standing after the Fall term:

You may continue with your studies under the following conditions:

- You must reduce your credit load to a maximum of 13 credits per term and must obtain, at the end of the term, either a CGPA of 2.00 or greater or a TGPA of 2.50 or greater.
- If you have a TGPA of 2.50 or greater, but your CGPA is less than 2.00, you may continue with your studies but will remain in probationary standing until you obtain a CGPA of 2.00 or greater.
- If you do not obtain either the TGPA or CGPA noted above, you will be placed in unsatisfactory standing.
- You must consult a faculty or departmental adviser before withdrawal deadlines concerning your course selection.

Students in unsatisfactory standing after the Winter term:

- You must withdraw from the Faculty of Engineering for a minimum of one term.

For more information about academic standing, see www.mcgill.ca/engineering/student/sao/policies/academic.

1.6.1.3 Academic Standing: Faculty of Law

If you do not obtain a sessional Grade Point Average (GPA at the end of Fall and Winter terms combined) of 1.50, you will be required to withdraw from the Faculty. If your sessional GPA is between 1.50 and 1.99, you will be permitted to continue with your program, but you must obtain a subsequent sessional GPA of 2.50 or a Cumulative GPA (CGPA) of 2.00. You must have a CGPA of 2.00 to be considered for graduation. Students who are required to withdraw from the Faculty may be authorized to continue in their program by the Faculty Admissions Committee if there are exceptional reasons for the required withdrawal.

1.6.1.4 Academic Standing: Continuing Studies

If you are in unsatisfactory standing, you must apply to the Appeals Committee of your academic area.

1.6.2 Credit System

The faculties listed in this publication use the credit system, where each course is assigned a credit rating reflecting the number of weekly contact hours. In general, a three-credit course indicates three hours of lectures per week for one term but this does not apply to all faculties. Laboratory contact hours usually count for fewer credits. Credits also reflect the amount of effort required of the student and generally assume two hours of personal study for each contact hour.
The credit weight of each course is indicated in parentheses beside the course title.

**Note:** Credit for multi-term courses (courses with the suffixes: D1, D2; N1, N2; J1, J2, J3) is granted only after successful completion of all components in the specified time frame. For example, a student would have to take D1 and D2 components in consecutive terms and successfully complete them both in order to obtain credit.

**Note for Agricultural and Environmental Sciences, and Science:** As a guideline, a one-credit course would represent approximately 45 hours total work per course. This is, in general, a combination of lecture hours and other contact hours such as laboratory periods, tutorials and problem periods as well as personal study hours.

**Note for Engineering:** One credit normally represents three hours total work per week. This is, in general, a combination of lecture hours and other contact hours such as laboratory periods, tutorials and problem periods as well as personal study hours. As a guide, the average number of hours per week of course activities is indicated in hours in the course listing after the course credit. For example, (3-0-6) indicates a course consisting of three lecture hours per week, no other contact hours, and six hours of personal study per week.

### 1.6.3 Grading and Grade Point Averages (GPA)

Courses can be graded either by letter grades or in percentages, but the official grade in each course is the letter grade. Where appropriate, a class average appears on transcripts expressed as the letter grade most representative of the class performance.

Since Fall 2002, the University has only used letter grades on transcripts and verification forms.

Grades A through C represent satisfactory passes, D a conditional (non-continuation) pass, and F a failure. Certain courses have been approved for Pass/Fail (P/F) grading. Students may also designate elective courses to be graded under the S/U option. See [section 1.4.7: Courses Taken under the Satisfactory/Unsatisfactory (S/U) Option](#).

You must obtain a grade of C or better in courses that you take to fulfill program requirements. You may not register in a course unless you have passed all the prerequisite courses with a grade of C or better, except by written permission of the appropriate department chair.

<table>
<thead>
<tr>
<th>Grades</th>
<th>Grade Points</th>
<th>Numerical Scale of Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4.0</td>
<td>85 - 100%</td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
<td>80 - 84%</td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
<td>75 - 79%</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
<td>70 - 74%</td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
<td>65 - 69%</td>
</tr>
<tr>
<td>C+</td>
<td>2.3</td>
<td>60 - 64%</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
<td>55 - 59%</td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
<td>50 - 54%</td>
</tr>
<tr>
<td>F (Fail)</td>
<td>0</td>
<td>0 - 49%</td>
</tr>
</tbody>
</table>

**Note for Engineering:** The Faculty of Engineering does not use this numeric scale. See [Note for Engineering](#) below.

**Note for Law:** Faculty of Law does not use this numeric scale.

The University assigns grade points to letter grades according to the table above. Your academic standing is determined by a grade point average (GPA), which is calculated by dividing the sum of the course credit, times the grade points by the total course GPA credits. The result is not rounded up to the nearest decimal point.

GPA credits are the credits of courses with grades that are assigned grade points.

\[
GPA = \frac{\sum \text{(course credit x grade points)}}{\sum \text{(GPA course credits)}}
\]

The term grade point average (TGPA) is the GPA for a given term calculated using all the applicable courses at the same level in that term. The cumulative grade point average (CGPA) is the GPA calculated using your entire record of applicable courses at McGill at the same level; if you change levels, e.g., from undergraduate to graduate, the CGPA starts again.
This policy took effect in January 2003. Prior to January 2003, if your degree program had changed, e.g., from B.Sc. to B.A., the CGPA started again. For students with academic information prior to Fall 2002, who are registered in a different program or in a different level post-Fall 2002, the transcript displays a special message regarding the CGPA restarting.

If you repeat courses, all results are included in the GPA calculation. Therefore, grades of D or F continue to be used in the CGPA calculation even after you repeat the course or if you take a supplemental examination. Note that credits are only granted once for a repeated course regardless of the passing grade.

You must obtain a minimum CGPA of 2.00 to be considered for graduation with a McGill degree.

**Note:** During the first week of lectures, each instructor will provide you with a written course outline. This information should include, where appropriate:

- whether there will be a final examination in the course;
- how term work will affect the final mark in the course;
- how term work will be distributed through the term;
- whether there will be a supplemental examination in the course, and if so, whether the supplemental exam will be worth 100% of the supplemental grade, or whether term work will be included in the supplemental grade (courses with formal final examinations must have supplementals);
- whether students with marks of D, F, J, or U will have the option of submitting additional work, and, if so, how the supplemental mark will be calculated with the extra work (applicable only to students in Science and B.A. & Sc.).

**Note for Engineering:** In the Faculty of Engineering, letter grades are assigned according to the grading scheme adopted by the professor in charge of a particular course. This may not correspond to marks indicated in the “Numerical Scale of Marks” column in “Grading and Grade Point Averages”. Grade D indicates marginal results which may be acceptable for peripheral courses but not for required core courses. The classification of a course as core or peripheral depends on your individual program and will be decided by the department concerned.

<table>
<thead>
<tr>
<th>Grades have the following designations:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A, A-</td>
</tr>
<tr>
<td>B+, B, B-</td>
</tr>
<tr>
<td>C+, C</td>
</tr>
<tr>
<td>D</td>
</tr>
<tr>
<td>F</td>
</tr>
</tbody>
</table>

### 1.6.4 Grading and Grade Point Averages (GPA): Other Grades

| J | — | unexcused absence (failed); the student is registered for a course but does not write the final examination or do other required work; calculated as a failure in the TGPA and CGPA. |
| K | — | incomplete; deadline extended for submission of work in a course. |
| KE or K* | — | further extension granted. |
| KF | — | failed to meet the extended deadline for submission of work in a course; calculated as a failure in TGPA and CGPA. |
| KK | — | completion requirement waived. Not calculated in TGPA or CGPA. |
| L | — | deferred examination. |
| LE or L* | — | permitted to defer examination for more than the normal period. |
| NR | — | no grade reported by the instructor (recorded by the Registrar). |
| P | — | pass; not calculated in TGPA or CGPA. |
| Q | — | course continued in next term (applicable only to courses taken pre-Fall 2002). |
| S | — | satisfactory; equivalent to C or better in an elective course; not calculated in TGPA or CGPA. (See section 1.4.7: Courses Taken under the Satisfactory/Unsatisfactory (S/U) Option) |
unsatisfactory; equivalent to D or F in an elective course; not calculated in TGPA or CGPA. (See section 1.4.7: Courses Taken under the Satisfactory/Unsatisfactory (S/U) Option)

W — withdrew; a course dropped, with permission, after the Course Change deadline; not calculated in TGPA or CGPA.

WF — withdrew failing; a course dropped, with special permission in an exceptional case, after faculty deadline for withdrawal from course, the student’s performance in the course at that stage being on the level of an F; not calculated in TGPA or CGPA. (Not used by Music.)

WL — faculty permission to withdraw from a deferred examination; not calculated in TGPA or CGPA.

NA or && — grade not yet available.

W- or - - — no grade; student withdrew from the University, not calculated in TGPA or CGPA.

1.6.5 Grading and Grade Point Averages (GPA): Unexcused Absences

All students who miss a final exam are given a J grade. You then have the following options:

1. Ask to be assigned a grade based only on the grades earned for your work submitted up to, but not including, the final exam.

   The grade earned is calculated by adding the grades obtained on the individual pieces of work and a grade of 0 for the portion of the final grade allocated to the final exam. This option is not available if the professor stipulated in the course outline that the final exam is a required part of the evaluation.

2. Request a deferred exam, if you have the appropriate reasons and documentation.

3. Apply for a supplemental exam if permitted by your faculty.

   **Note for Engineering:** Option 1 is not available to students in the Faculty of Engineering.

You must request option 1) no later than four months after the end of the examination period of the original course.

You must request option 2) by the faculty deadlines as indicated in section 1.7.7.2: Final Examinations: Deferred Examinations of this publication.

You must request option 3) by the faculty deadlines as indicated at www.mcgill.ca/student-records/exam/schedules.

If you wish to appeal a J grade, you should write to your Associate Dean or Director.

**Note for the Faculties of Arts and Science (including B.A. & Sc.):** Requests are made at Service Point (3415 McTavish Street). However, it is important that you also see a Faculty adviser in Dawson Hall to talk about your options and the effects that your request may have on your studies. For more information, see www.mcgill.ca/students/advising.

Revision, August 2011. Start of Revision.

**Note for Graduate and Postdoctoral Studies:** Only options 2 and 3 above are applicable to graduate students. Students wishing to appeal a J grade should write to the Associate Dean (GPS) or Director (GPS).

Revision, August 2011. End of Revision.

1.6.6 Incomplete Courses

If the instructor decides there is sufficient reason to permit a delay in the submission of required term work, an extension of the deadline after the end of the course may be granted to the student. In this case, the instructor will submit a grade of K (incomplete).

**Note:** If the instructor submits a grade of K, he or she will also indicate the date by which the student must complete the work. Consult the faculty sections for maximum extensions.

**Note:** If the instructor submits a new grade within the deadline, both the new grade and the grade of K will appear on your verification forms and unofficial and advising transcript. However, the new grade will replace the K on your official transcript.

**Note:** If you do not complete the required work before the deadline, a grade of KF will be updated on your record. A KF denotes a failed course and is calculated in the TGPA and CGPA as an F.
Note: In exceptional circumstances, and with the approval of the Associate Dean or Director, the deadline may be extended further, in which case the grade of KE (further extension granted) appears. If you do not meet the extended deadline, a grade of KF will replace the KE.

Note for the Faculties of Arts and Science (including B.A. & Sc.): An instructor who believes that there is justification for a student to delay submitting term work may extend the deadline until after the end of the course. In this case, the instructor will submit a grade of “K” (incomplete), indicating the date by which the work is to be completed. The maximum extensions for the submission of grades are as follows:

<table>
<thead>
<tr>
<th>Students graduating in June</th>
<th>Fall, Winter, and multi-term courses</th>
<th>April 30</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>non-graduating students</th>
<th>Fall courses</th>
<th>April 30</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Winter and multi-term courses</td>
<td>July 30</td>
</tr>
<tr>
<td></td>
<td>Summer courses</td>
<td>November 30</td>
</tr>
</tbody>
</table>

Students’ deadlines for submitting their work must be appropriately before these dates to ensure that the work can be assessed and the grade submitted on time.

It is important to note that instructors may impose earlier deadlines than those listed above.

If grades to clear K’s have not been submitted by the above deadlines, the K is automatically changed to a KE and counts as an F in the GPA.

Students with a grade of K who have serious extenuating circumstances may request an extension of the K deadline (KE) from the Associate Dean or Director of their faculty.

For more information, see section 1.6.3: Grading and Grade Point Averages (GPA).

Requests are made at the Service Point (3415 McTavish Street). However, it is important that you also see a Faculty adviser in Dawson Hall to talk about your options and the effects that your request may have on your studies. For more information, see www.mcgill.ca/students/advising.

Note 1 for Law students: In the Faculty of Law, permission to delay submission of required term work must be obtained from the Student Affairs Officer. It cannot be granted by the instructor. If, in the opinion of the Student Affairs Officer, there is sufficient reason to permit a delay in the submission of required term work, an extension of the deadline after the end of the course may be granted to the student. In this case, the instructor will submit a grade of K (incomplete). If an extension of the deadline is granted, the Student Affairs Officer will indicate the date by which the student must complete the work. If the instructor submits a new grade within the new deadline, both the new grade and the grade of K will appear on the student's faculty reports and verification forms. However, on the student's official transcript the new grade will replace the K. If the required work is not completed before the deadline, a grade of KE will be updated on the student's record. A KE denotes a failed course and is calculated in the TGPA and CGPA the same as an F. In exceptional circumstances, and with the approval of the Assistant Dean (Student Life and Learning), the deadline may be extended further, in which case the grade of KE (further extension granted) will appear. If the extended deadline is not met, a grade of KF will replace the KE.

Note 2 for Law students: If, without a valid excuse, you do not participate in or write a final examination or submit required term work for any courses you were registered in, you will receive a final grade of J (unexcused absence).

Note for Music students: A Music student who has a mark of K not cleared in mid-May is ineligible for scholarships.

1.6.7 Transfer Credits

You may be granted credit for courses passed with a grade of C or better at other universities, as long as you are within the number of credits imposed by McGill's residency requirements and program requirements in some faculties.

In general, a maximum of 60 transfer credits from other institutions may be granted. You need a minimum of 60 credits completed at McGill to qualify for a McGill degree. You must be in satisfactory standing in order to be granted the transfer credits. Courses with grades of C-, P, and S are not considered for transfer credits. The letter grades applied by the host institution take precedence over the numerical grades if both are provided.

You need to obtain approval from your Student Affairs Office for courses taken at other universities. In some faculties, you need to obtain approval from your Student Affairs Office as well as from your academic adviser before you take the courses, especially if the courses are part of your program requirements.

Grades earned at the host university for transfer courses are not entered on your McGill transcript and are not part of the TGPA or CGPA calculation.

For universities outside Quebec, it is your responsibility to ensure that the host institution sends an official transcript to the Student Affairs Office. You must submit all documents required for approval of your transfer credits with your faculty at McGill within four months of completing your exchange program or study away. If you are studying at another Quebec university on an Inter-University Transfer (IUT) agreement, the host university sends your grade(s) to McGill automatically. For additional information, see section 1.4.5: Quebec Inter-University Transfer Agreement: McGill Students.

Transcripts for transfer courses must be received by the following deadlines:
### Graduation Term

<table>
<thead>
<tr>
<th>Graduation Term</th>
<th>Convocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 1, if your term of graduation is Winter</td>
<td>Convocation in Spring</td>
</tr>
<tr>
<td>August 15, if your term of graduation is Summer</td>
<td>Convocation in Fall</td>
</tr>
<tr>
<td>December 15, if your term of graduation is Fall</td>
<td>Degree granted February, Convocation in Spring</td>
</tr>
</tbody>
</table>

Transcripts not received by the appropriate date are considered for the next graduation period only.

**Note for the Faculty of Arts:** The Arts Office of Advising & Student Information Services (OASIS) does not encourage you to participate in any type of study away or exchange in the last term of your final year (U3), as this will delay your graduation to the next graduation period.

**Note for Engineering:** The number of transfer credits granted will be limited to ensure that you complete a minimum of 60 credits of courses at McGill taken to satisfy your degree requirements, excluding those taken to satisfy the Required Year 0 (Freshman) courses listed in your program.

**Revision, August 2011. Start of revision.**

**Note for Law:** A limited number of the credits required for the B.C.L./LL.B. degree program may be obtained in appropriate courses offered by other McGill faculties or other universities, with the approval of the Assistant Dean (Student Life and Learning) before registration. The total number of credits allowed under this regulation must not exceed six non-law courses and six non-McGill law courses.

**Revision, August 2011. End of revision.**

**Note for the Faculty of Science (including B.A. & Sc.):** The Science Office for Undergraduate Student Advising (SOUA) does not encourage you to participate in any type of study away, or exchange in the last term of your final year (U3), as this will delay your graduation to the next graduation period.

#### Verification of Student Records: Unofficial Transcripts

Subject to section 1.6.10: Changes to Student Records after Normal Deadlines, you are responsible for verifying your academic record on Minerva (www.mcgill.ca/minerva) using the unofficial transcript to ensure that you are registered in the proper courses, and that the correct program information and expected term of graduation appear on your record.

If you are graduating, verify your record on Minerva before the end of your final term to ensure that the correct expected graduation term appears on your unofficial transcript; if not, you may be overlooked for graduation. You should direct any questions or problems with your record to your Student Affairs Office.

**Note for the Faculties of Arts and Science (including B.A. & Sc.):** Requests are made at the Service Point (3415 McTavish Street). However, it is important that you also see a Faculty adviser in Dawson Hall to talk about your options and the effects that your request may have on your studies.

For more information, see www.mcgill.ca/students/advising.

**Revision, August 2011. Start of Revision.**

**Note for Graduate and Postdoctoral Studies:** You should direct any questions or problems with your record to your Graduate Program Director or directly to GPS.

**Revision, August 2011. End of Revision.**

#### Verification of Student Records: Degree Evaluation

**Degree Evaluation** is a Minerva tool to help students and advisers compare the student's academic record with the requirements of a specific program. If you have access to Degree Evaluation on Minerva under the Student Records Menu (www.mcgill.ca/minerva) you can review your progress within your current program. Also, if you are considering a program change, you can generate a "what-if" comparison of your academic record with the requirements of another program.

The presentation in the Degree Evaluation Report may have a different appearance than the requirements listed in this publication. For example, a long listing of courses may be grouped into one course "attribute" on the Minerva report.

Degree Evaluation also provides a central record of adviser/faculty-approved adjustments to your program of study (e.g., the replacement of one specified course with another or acceptance of a non-McGill course for credit).

Please note that Degree Evaluation is an advising tool only. A Degree Evaluation Report that indicates program requirements have been satisfied does NOT constitute approval to graduate.

For details regarding Degree Evaluation, including Reading a Degree Evaluation Report, see www.mcgill.ca/students/courses/plan/evaluation.
1.6.10 Changes to Student Records after Normal Deadlines

1.6.10.1 Student Record Changes

Student record changes include the following: course add or course drop, course withdrawal, university withdrawal, program change (including changing majors, minors or concentrations).

1.6.10.2 Registrar Deadlines

Fall term - January 31
Winter term - June 1
Summer term - October 1

1.6.10.3 Before Registrar Deadlines

For record changes after the normal deadlines published in this publication, but before the Registrar deadlines listed in Registrar Deadlines, you must make a request in writing to your Associate Dean or Director, clearly explaining why you could not request the change before these dates. The Associate Dean or Director will review your request and make a decision. If your request is approved, the change is processed according to existing faculty and Enrolment Services student record procedures.

Note for the Faculties of Arts and Science (including B.A. & Sc.): Requests are made at the Service Point (3415 McTavish). However, it is important that you also see a Faculty adviser in Dawson Hall to talk about your options and the effects that your request may have on your studies. For more information, see www.mcgill.ca/students/advising.

1.6.10.4 After Registrar Deadlines

The University does not normally consider a change requested after the Registrar deadlines listed in Registrar Deadlines have passed. In situations where there are "extraordinary personal" or "extraordinary academic" circumstances that could not have been foreseen prior to these deadlines, you may formally request a student record change from your Associate Dean or Director. If your Associate Dean or Director approves the request, the change will be processed according to faculty and Enrolment Services student-record procedures. For all changes other than grade changes, the faculty will file full documentation that supports the extraordinary circumstances with Enrolment Services.

Note for the Faculties of Arts and Science (including B.A. & Sc.): Requests are made at the Service Point (3415 McTavish). However, it is important that you also see a Faculty adviser in Dawson Hall to talk about your options and the effects that your request may have on your studies. For more information, see www.mcgill.ca/students/advising.

1.6.10.5 Fee Assessment Consequences

When a change to your student record is made, the revised fee assessment appears on your next fee statement. If you want to contest the fee assessment, you must make a written request to Enrolment Services. Enrolment Services reviews the extraordinary circumstances described in the supporting documentation provided by your faculty, and consults with the Student Accounts Office if necessary, to decide whether or not to consider the request. Enrolment Services then sends you a letter explaining the decision.

1.6.10.6 Student's Citizenship and/or Immigration or Fee Exemption Status

Note that your faculty/school or Graduate and Postdoctoral Studies does not handle changes related to your citizenship and/or immigration or fee exemption status; see section 1.3.2: Legal Documents: Why Does McGill Collect Legal Documents from You?.

1.6.11 Transcript of Academic Record: Unofficial Transcripts

If you require a copy of your student record, access Minerva (www.mcgill.ca/minerva) to view and print an unofficial transcript. This applies to records from 1976 to the present. For pre-1976 records, you must order an official transcript. See section 1.6.12: Transcript of Academic Record: Official Transcripts.

1.6.12 Transcript of Academic Record: Official Transcripts

Use Minerva (www.mcgill.ca/minerva) to order an official transcript at Student Menu > Student Records Menu > Request Printed/Official Transcript. For more information on transcripts, delivery method and processing time see www.mcgill.ca/student-records/transcripts

Alumni who were registered or graduated prior to Fall 2002: Please visit the IT Knowledgebase (www.mcgill.ca/it) to view how your McGill ID & Minerva PIN has changed.

Alumni who were registered or graduated prior to 1972 (archived records): You are unable to submit a request in Minerva. Complete and sign a Request for Release of Official Document form located on: www.mcgill.ca/student-records/forms and submit the form to Service Point (www.mcgill.ca/student-records/contact).

Note: Proxy requests will be accepted only with written authorization.
1.6.13 Transcript of Academic Record: General Information

Transcripts are free of charge.

The University sends official transcripts directly to the addresses provided by the student. If you intend to deliver the transcript to another institution yourself, you can request to receive it in a sealed envelope.

Requests are normally processed in 24 to 48 hours; transcripts requested at peak times and for pre-1976 records take longer.

Enrolment Services is not responsible for transcripts that are lost or delayed in the mail.

The University issues only complete transcripts that record all attempted work and final results obtained in any and all programs. Under no circumstances does the University issue partial transcripts.

Official transcripts are NOT issued for students registered on or after September 2001 who have failed to provide the information and/or documents necessary to obtain or verify their Permanent Code.

Transcripts are not issued if you owe fees or fines over $30.

The University prints official transcripts on secure paper that cannot be copied.

Requests for official transcripts must be submitted on Minerva. For more information, refer to section 1.6.12: Transcript of Academic Record: Official Transcripts.

1.6.14 Transcript of Academic Record: Course Numbering on the Transcript

Prior to September 2002, course numbers had seven-character designations beginning with a three-number code indicating the teaching unit/department. The next three digits specified the course, with the first of these indicating its level. The final character was a letter indicating the term, or terms, during which the course was offered. For example:

107-200A = Philosophy (107) course (200) in Fall term (A);
301-202B = Architecture (301) course (202) in Winter term (B);
154-230D = Economics (154) course (230) extending for two terms, Fall and Winter (D).

A list of the former Teaching Unit Codes and their Subject Code equivalents is available at www.mcgill.ca/student-records/transcripts.

For information on our current course numbering, see Course Numbering.

Revision, June 2011. Start of Revision.

Note for Continuing Studies:

Examples of course numbers displaying on transcripts prior to September 2002 are:

280-211X = Intro. to Financial Accounting in Fall term (X);
629-202Y = Micro Economics in Winter term (Y);
660-221Z = Project Management extending for two terms, Fall and Winter (Z).

Revision, June 2011. End of Revision.

1.7 Examinations: General Information

Revision, August 2011. Start of revision.

Note: The University Exam Regulations governed by the University Student Assessment Policy (adopted by Senate in February 2011; see section 1.2.5: University Student Assessment Policy) are being updated for Fall 2011 and will be available at www.mcgill.ca/students/exams/regulations. The revised Regulations will be published in the University Regulations and Resources section of the 2012-2013 Programs, Courses and University Regulations publication. This "Note" applies to all subsections under this topic Examinations: General Information.

Revision, August 2011. End of revision.

In addition to the University Student Assessment Policy available at www.mcgill.ca/secretariat/policies/students and the general examination regulations listed here, you should consult www.mcgill.ca/students/exams and the faculty sections of this publication for particular regulations. You will be informed by the end of the Course Change period of the evaluation method used in each course.

Every student has a right to write term papers, examinations and theses in English or in French, except in courses where knowledge of a language is one of the objectives of the course.

You are not permitted to write an examination in any course unless you have fulfilled the requirements of the course to the satisfaction of the instructor and your Associate Dean or Director. Once you have presented yourself for an examination or test, you must submit all written work to the invigilator before leaving.
You must have your valid McGill student ID card with you to write an examination. Forgetfulness is not an acceptable excuse.

You are reminded that cheating in any examination is considered a serious offence that could lead to expulsion from the University. Students are not permitted to have in their possession, or to use, any unauthorized materials during an examination. This includes electronic devices such as cell phones, iPods, MP3 players, PDAs and other web-access devices. Unauthorized items found on the student or desk area during an exam will be confiscated and turned over to the Disciplinary Officer.

Responses on multiple-choice examinations are normally checked by the Exam Security Computer Monitoring Program. The program detects pairs of students with unusually similar answer patterns on multiple-choice examinations. Data generated by the program can be used as admissible evidence either to initiate or corroborate an investigation or a charge of cheating under Section 16 of the Code of Student Conduct and Disciplinary Procedures.

All students are responsible for knowing the University Student Assessment Policy (available at www.mcgill.ca/secretariat/policies/students) and the Code of Student Conduct and Disciplinary Procedures (available at www.mcgill.ca/students/exams/regulations).

You can find information about issues related to academic integrity at www.mcgill.ca/students/srr/honest.

Note for Engineering Students: You should also refer to the Engineering website for more information at www.mcgill.ca/engineering/student/sao/policies/examinations/examination.

Note for Law Students: You should also refer to the Law website for more information at www.mcgill.ca/law-studies/information/exams.

Revision, June 2011. Start of revision.

Note for Continuing Studies Students: You should consult the academic sections of this publication for particular regulations.

Revision, June 2011. End of revision.

1.7.1 Class Tests

Members of the teaching staff may give interim class tests from time to time.

1.7.2 Special Examination Facilities for the Disabled

If you have a permanent or temporary disability, consult the Coordinator, Office for Students with Disabilities, about the possibility of arranging special examination facilities. For more information, see: www.mcgill.ca/osd.

1.7.3 Credit by Examination

In certain exceptional cases and in certain faculties, you can apply to the Associate Dean or Director to write a final examination in order to obtain credit in a course that you were not registered in. This is possible only in those courses where there is no other assessment except the final examination.

1.7.4 Faculty of Engineering Policy on use of Calculators in Faculty Tests and Examinations

The use of calculators during tests and examinations is at the discretion of the course instructor. If a calculator is permitted in the examination, you are required to use one of the following calculators: CASIO fx-115, CASIO fx-991, CASIO fx-570MS, SHARP EL-520, or SHARP EL-546. No other calculators will be permitted, regardless of their level of sophistication. Non-regulation calculators will be removed and no replacement calculator will be provided. You are expected to own one of the above listed Faculty of Engineering Standard Calculators. For more information, see www.mcgill.ca/engineering/student/sao/policies/examinations/calculators.

1.7.5 Laptop Examination Agreement for the Faculty of Law

Revision, August 2011. Start of revision.

The Examination Agreement is designed to confirm that students agree to the terms of the laptop policy. The following are the components of the Examination Agreement:

1. I elect to write one or more of my law examinations using a laptop with the approved McGill University software during the examination period. I recognize that this is a 3rd party application, and that neither McGill University nor the Faculty of Law is responsible for its proper functioning.

2. I confirm that my personal laptop meets the minimum requirements (as stipulated in the Faculty of Law – Laptop Exam Student section of the WebCT course Law-Law-Student Affairs-Examinations) for the laptop exam pilot project. My laptop has access to the McGill wireless network. Once I have completed this agreement, I will download and install the University-approved software on my laptop. I will follow the tutorial and test the software on my laptop within the stated deadlines.

3. If my laptop fails during the exam (e.g., a computer crash), I agree to continue and finish the exam by handwriting it. I understand that I will not be granted additional time to resolve the computer problems during the exam. If the incomplete examination cannot be retrieved from my computer within two working days, the Associate Dean (Academic) will determine remedial options.
4. I understand that, if necessary, ICS staff may be available to troubleshoot any difficulties encountered with the approved software (a 3rd party application). I will be asked to sign an IST Customer Services-Computer Repair Waiver acknowledging that ICS staff will not be held responsible for any theft, loss, or damage (to hardware or software) occurring during the diagnosis or repair of my laptop, or for any loss of data, regardless of when it was lost.

For more information on this agreement, see: www.mcgill.ca/law-studies/information/exams.

Revision, August 2011. End of revision.

1.7.6 Laptop Examination Policy for the Faculty of Law

Revision, August 2011. Start of revision.

All students wishing to write one or more final examinations on their laptop must:

i. complete the Faculty of Law laptop Examination Agreement;

ii. download the Faculty-approved software and

iii. run a test prior to the start of the examination period;

iv. if necessary, sign an IST Customer Services-Computer Repair Waiver.

The Student Affairs Office will provide term-specific deadlines. You will not be permitted to use a laptop unless you have fulfilled the above requirements. You must ensure that the laptop you are using meets the minimum requirements for the software as specified by the Student Affairs Office, as posted on the SAO website and myCourses. Students using laptops will not be placed in separate examination rooms. You may opt out of using your laptop at any point, even once the examination has started, and revert to handwriting.

Revision, August 2011. End of revision.

1.7.7 Final Examinations

Revision, August 2011. Start of revision.

Formal final examinations are held during an examination period at the end of the course term. The dates of the examination periods are listed at www.mcgill.ca/importantdates.

Important Note: You are advised not to make travel plans prior to the release of the Final Exam Schedule. Vacation plans do not constitute grounds for the deferral or re-scheduling of final exams.

In some courses there is no final examination; your standing in these courses is determined by term work and class tests.

1.7.7.1 Final Examinations: University Regulations Concerning Final Examinations

1.7.7.1.1 Preamble

The objectives of these regulations are as follows:

1. to protect students from excessive workloads;

2. to use the full 15-week term to maximum advantage.

1.7.7.1.2 Regulations

1. These regulations shall apply to undergraduate courses up to and including the 500 level that are evaluated by the use of written examinations. They shall not apply to clinical, field, laboratory, performance, and seminar courses, or to other courses that are evaluated solely by means of a design, paper, program, or project.

2. Written examinations (including take-home examinations) shall not be held during the last two weeks of scheduled classes during the Fall and Winter terms, except where a pattern of continuous evaluation has been established, in which case the total value of examinations given in this period shall comprise no more than 10% of the final mark.

3. If the written examinations in a course constitute 50% or more of the final mark, one of these shall be given as a final written examination, and it shall take place during the examination period after the last day of scheduled lectures in December or April.

4. A final examination given during the examination period shall be worth at least 25% of the final mark.

5. Students shall be informed of all course requirements by the end of the course change period. All term work shall be assigned early enough in the term for students to complete the assignment(s) by the last day of class.

6. The due date for term work in courses to which these regulations apply shall be no later than the last day of classes.

7. In courses that span the Fall and Winter terms (course pairs with numbers ending D1 and D2), instructors who wish to give a mid-year examination in December must schedule it in the formal examination period.

8. The principles enunciated in these regulations shall be applied, appropriately modified, to courses given during the summer, to other courses of less than a 13-week duration, and to courses in the Faculties of Law, Medicine, Dentistry, and Education that do not follow the normal University Timetable.

9. Individual faculties may propose variations in these regulations to the Academic Policy and Planning Committee in order to meet their special needs.

10. These regulations, and any variations to them, shall be made known to students by each faculty.
Instructors are not permitted to grant any special treatment regarding examinations to any student. Students who believe there are circumstances which might justify making special examination arrangements for them or which might legitimately be taken into account in evaluating their performance should apply to the Associate Dean or Director of their faculty.

**Note for the Faculties of Arts and Science (including B.A. & Sc.):** Requests are made at Service Point (3415 McTavish Street). However, it is important that you also see a Faculty adviser in Dawson Hall to talk about your options and the effects that your request may have on your studies. For more information, see [www.mcgill.ca/students/advising](http://www.mcgill.ca/students/advising).

It is the responsibility of the student to confirm the date, time and place of the examination by checking examination schedules posted on notice boards on campus and at [www.mcgill.ca/students](http://www.mcgill.ca/students). This information is not available by telephone. No student will be allowed to enter an examination later than one hour after it has started.

### 1.7.7.2 Final Examinations: Deferred Examinations

If, for serious reasons such as illness or family affliction, you have not written one or more examinations, you may receive the permission of your Faculty Student Affairs Office or Service Point (for students in the Faculties of Arts or Science) upon providing supporting documentation to defer the examination to the next deferred/supplemental examination period, except for courses administered by the Faculty of Engineering (where students write the examination the next time the course is given); see section 1.7.7.2.1: Deferred Examinations: Faculty of Engineering. You should provide supporting evidence such as an appropriate medical report as soon as possible. You should be aware that the University will only defer examinations for compelling reasons, verified and accepted by the Student Affairs Office or Service Point.

If you are in one of the following faculties, you must apply for deferred examinations on Minerva ([www.mcgill.ca/minerva](http://www.mcgill.ca/minerva)): Agricultural and Environmental Sciences, Arts, Education, Engineering, Religious Studies, Science, School of Physical and Occupational Therapy, School of Social Work, and the School of Continuing Studies. If you do not belong to one of the above faculties, consult your faculty for application procedures.

The final application deadline in Agricultural and Environmental Sciences, Arts, Science, Education, Engineering, Management and the School of Continuing Studies for deferred examinations is January 15 (for Fall term courses), and May 15 (for Winter term courses and courses that span the Fall and Winter terms).

If your request is approved, an L will appear in place of a grade in those courses. The grade you obtain on the deferred examination will replace the grade of L on your official transcript.

If you receive a grade of D, F, J, or U in a course after a deferred examination, no supplemental examinations will be available. You must either re-register in the same course the following term or in an approved course substitute.

For Summer term courses, check with your Student Affairs Office on the availability and restrictions of deferred examinations.

If you have already written an examination, you cannot later request for the exam to be deferred. You should consult your Student Affairs Office regarding the availability of supplemental examinations.

**Note for the Faculties of Arts and Science (including B.A. & Sc.):** Submit your supporting documents to Service Point (3415 McTavish Street). However, it is important that you also see a Faculty adviser in Dawson Hall to talk about your options and the effects that your request may have on your studies. For more information, see [www.mcgill.ca/students/advising](http://www.mcgill.ca/students/advising).

**Note for the Faculty of Engineering:** You should refer to section 1.7.7.2.1: Deferred Examinations: Faculty of Engineering for more information on the Faculty of Engineering policies on deferred exams.

**Revision, August 2011. Start of revision.**

**Note for the Faculty of Law:** You should refer to [www.mcgill.ca/law-studies/information/exams/#DEFSUP](http://www.mcgill.ca/law-studies/information/exams/#DEFSUP) for more information on the Faculty of Law policies on deferred exams.

**Revision, August 2011. End of revision.**

If you are not granted deferred status, you will receive a grade of J in the course, which will count as a failure in the TGPA and CGPA. You may, however, be allowed to write a supplemental examination. **Please note that there are no supplemental exams in Agricultural and Environmental Sciences or Management courses.** For the Faculty of Engineering, supplemental exams are exceptionally offered for some Science, Humanities and Social Sciences courses. For a list of these courses, see the Faculty of Engineering website ([www.mcgill.ca/engineering](http://www.mcgill.ca/engineering)).

### 1.7.7.2.1 Deferred Examinations: Faculty of Engineering

A detailed letter in support of the application must be entered in the "reason(s) for deferral" section of the application on Minerva.

You must submit supporting documentation to the Engineering Student Centre (Frank Dawson Adams Building, Room 22) within one week of the missed examination.

For requests due to medical reasons, a deferral is granted only if the nature of the illness is serious enough to justify absence from the examination. The date of the missed exam and the nature of the illness must be clearly indicated on the medical certificate. Medical certificates stating "medical reasons" and illegible documents will not be accepted.
If you miss your examination for reasons other than medical reasons, you must submit supporting documentation from the appropriate authority which covers the date of the missed exam, where applicable.

You are required to frequently verify the status of your deferred application on Minerva to determine whether any additional information is required by the Student Affairs Office, Engineering Student Centre.

You will receive an email notification once a deferred examination application decision has been made.

**Rules and regulations:**

- Deferred exams for courses administered by the Faculty of Engineering are written during the final examination period the next time the course is offered, excluding the summer term. The final examination schedule is available at [www.mcgill.ca/students](http://www.mcgill.ca/students).
- The following courses are administered by the Faculty of Engineering: CHEM 233, COMP 208, EPSC 221, MATH 262, MATH 263, MATH 264, MATH 270, MATH 271, MATH 363, MATH 381 and PHYS 271.
- If taking the deferred exam will delay your graduation, you should indicate this by adding a comment in your deferral application on Minerva. The Student Affairs Office may grant an earlier deferral exam in such cases, and will notify you via your McGill email.
- For each deferred examination that is approved, an L (deferred) grade will appear on your record, but will not appear on official transcripts after the final grade has been determined. The grade you will receive in the deferred examination will replace the grade that you would have received in the original final exam. An L grade will be replaced by a J if you miss the NEXT deferred or regular examination in the course, whichever happens first.
- The format of the deferred examination will not necessarily be identical to the original final examination of the same course. You are responsible for contacting the professor if you require information about the deferred examination format.
- If you have written your final examination, you may not request that the exam be deferred.
- You are not permitted to redo any portion of the coursework such as assignments, projects, labs, midterms, quizzes, etc. (i.e., all grades previously obtained will be calculated with the final grade of the deferred examination to determine the final grade).
- Once a deferred exam has been granted, you may write no more than six final examinations per term. This will give you sufficient time during the term and the examination period to properly prepare for your deferred examination(s).
- The Faculty of Engineering does not grant extensions to deferred examinations.

### 1.7.7.2.1 Non-Engineering Courses

Deferred examinations for courses administered by the following faculties are offered during the supplemental/deferred examination period:

- Faculty of Arts
- Faculty of Agricultural and Environmental Sciences
- Faculty of Education
- Desautels Faculty of Management
- Faculty of Religious Studies
- Faculty of Science (courses administered by the Faculty of Science, including Year 0 math and science courses)
- School of Social Work

The supplemental/deferred examination schedule is available at [www.mcgill.ca/students/exams/supdefer](http://www.mcgill.ca/students/exams/supdefer).

### 1.7.7.2.2 School of Continuing Studies Courses

Deferred exams for courses administered by the School of Continuing Studies are offered during the next term’s final examination period. The final examination schedule for School of Continuing Studies courses is available at [www.mcgill.ca/conted/studentres/records/exams](http://www.mcgill.ca/conted/studentres/records/exams).

### 1.7.7.2.3 Summer Studies

For courses offered in the Summer term, you must submit a written request (with supporting documentation) for deferred examinations to the Engineering Student Centre (FDA 22) no later than four days after the date of the missed final examination.

For courses administered by the Faculty of Engineering, the deferred examination is written during the final examination period the next time the course is offered. For non-Engineering courses, the date will be determined by Summer Studies and you will be notified via your McGill email.

The final examination schedule for Summer Studies courses is available at [www.mcgill.ca/summer/finalexams/](http://www.mcgill.ca/summer/finalexams/).

### 1.7.7.3 Final Examinations: Reassessments and Rereads

In accordance with the *Charter of Students' Rights*, and subject to its stated conditions, you have the right to consult any written submission for which you have received a grade. You also have the right to discuss this submission with the examiner. If you want to have a formal final examination reread, you must apply in writing to your Student Affairs Office (the Associate Dean, Student Affairs, in the Faculty of Agricultural and Environmental Sciences and in the Schulich School of Music), or Service Point if you are a student in the Faculty of Arts or the Faculty of Science. You should check with that office regarding application deadlines for formal rereads.

### 1.7.7.3.1 Reassessments and Rereads: Faculties of Arts and Science (including B.A. & Sc.)

There are two recognized types of impartial reviews, i.e., reassessments or rereads:

- reassessment of coursework (term papers, mid-terms, assignments, quizzes, etc.);
- reread of a final exam.
In both cases, rather than recorrect the work and then grade it as they would have done themselves, reviewers assess the appropriateness of the original grade based, for example, on the application of the grading key to the student's work. If a grade is deemed unfair, it is changed, whether the new grade is higher or lower than the original, i.e., the reviewer's grade takes precedence over the original grade.

1.7.7.3.1.1 Reassessment of Coursework

These reassessments are administered and conducted solely by the units involved according to procedures specified by the units and made available to staff and students. Requests for such reassessments must be made within 10 working days after the graded material(s) has been made available for students to view. Reassessments should normally be completed within 20 working days of the request.

1.7.7.3.2 Rereads of Final Examinations

These rereads are administered by Service Point, but conducted by the units involved. You must make a request to Service Point by March 31 for courses in the Fall term, and by September 30 for courses in the Winter or Summer terms (these deadlines are strictly enforced and no requests will be accepted once they have passed). You are assessed a fee of $35 for such rereads. It is strongly recommended, but not required, that you consult with the instructor of the course before requesting a reread of a final exam.

Reassessments and rereads in courses not in the Faculties of Arts and Science are subject to the deadlines, rules, and regulations of the relevant faculty.

1.7.7.3.2 Reassessments and Rereads: Faculty of Law

Revision, August 2011. Start of revision.

For information on the Faculty of Law's grade review regulations (rereads of failed examinations, rereads of failing assignments, and review of final evaluations) refer to: www.mcgill.ca/law-studies/information/exams/#REVIEWS.

Revision, August 2011. End of revision.

1.7.7.3.3 Rereads: Faculty of Engineering

You can request a formal reread of a final examination once you have discussed it with your instructor. You must complete a Request for a Reread of a Final Exam form and submit it to the Student Affairs Office, Engineering Student Centre.

The following regulations apply:

• You may request rereads for only one course per term, unless you obtain permission from the Student Affairs Office, Engineering Student Centre.
• Grades may be either raised or lowered as the result of a reread.
• A $35 fee for each reread will be assessed directly to your McGill account if the result remains the same or is lowered. If the grade is raised, there is no charge.

Reread application deadlines:

• Fall courses: March 31
• Winter courses: July 31
• Summer courses: November 30

Non-Engineering courses: Rereads in courses not in the Faculty of Engineering are subject to the deadlines, rules and regulations of the relevant faculty.

1.7.7.4 Additional Work: Faculty of Science (including B.A. & Sc.)

Instructors of courses that include graded, written term work may choose to provide the option of additional work to eligible students. The following conditions apply:

• if there is an option for additional work, it must be announced in the course outline at the beginning of the course;
• additional work involves revising one or more previously submitted papers or submitting new written work to replace the original work;
• you must be in satisfactory or probationary standing;
• you must have received a final grade of D, J, F, or U in the course;
• the weight of the additional work will be equal to the weight given to the work that was revised or replaced when the original grade was submitted;
• the grade resulting from the revised or additional work will be recorded as a supplemental grade;
• the supplemental result will not replace the grade originally obtained, which is used in calculating the GPA; both the original grade and the supplemental grade will count in calculating the CGPA;
• in courses in which both a supplemental examination and additional work are available, you may choose the additional work or the examination or both; where both are written, only one supplemental grade will be submitted, reflecting grades for both the supplemental examination and the additional work;
• additional work in courses outside the Faculty of Science (including B.A. & Sc.) is subject to the deadlines, rules, and regulations of the relevant faculty.

Note for the Faculty of Science (including B.A. & Sc.): Requests are made at Service Point (3415 McTavish). However, it is important that you also see a Faculty adviser in Dawson Hall to talk about your options and the effects that your request may have on your studies. For more information, see www.mcgill.ca/students/advising.
1.7.7.5 Supplemental Examinations

To write a supplemental examination for a course, you must submit a request on Minerva (www.mcgill.ca/minerva) by going to Student Menu > Student Records Menu > Supplemental Exam Application.

The following rules and conditions apply:

- You must be in Satisfactory or Probationary Standing;
- You must have received a final grade of D, F, J, or U in the course;
- A $35 non-refundable fee for each supplemental exam application is assessed at the time of application and charged directly to your McGill account;
- Only one supplemental examination is allowed in a course;
- Supplemental examinations are available for most courses given in the Faculties of Arts, Science, Education, Religious Studies and Social Work;
- Supplemental examinations are not available for courses administered by Agricultural and Environmental Sciences, Management, Music, or Engineering;
- Special permission is required if you want to write supplemental exams totalling more than 8 credits;
- The format of the supplemental examination (e.g., multiple-choice or essay questions) will not necessarily be the same as the final examination, so you should consult the instructor about the format;
- The supplemental result may or may not include the same proportion of class work as did the original grade; the instructor will announce the arrangements to be used for the course by the end of the course change period;
- The supplemental grade will not replace the grade originally obtained, which is used in calculating the GPA; both the original mark and the supplemental result will be calculated in the CGPA;
- For courses in which both a supplemental examination and additional work are available, you may choose the additional work, or the examination, or both; where both are written, only one supplemental mark will be submitted, reflecting marks for both the supplemental examination and the additional work;
- There are no supplemental examinations for Summer courses;
- Additional credit will not be given for a supplemental exam where the original grade for the course was a D and you already received credit for the course;
- No supplemental examinations are available if you fail to achieve a satisfactory grade in a course with a deferred examination;
- Supplemental examinations in courses outside your faculty are subject to the deadlines, rules and regulations of the relevant faculty.

You must frequently verify the status of your supplemental exam application on Minerva for any additional information required by your Student Affairs Office. Once your application has been approved you will receive a confirmation email at your McGill email address.

If you register for a supplemental examination but find yourself unprepared for it, you should not write the exam; except for the loss of the application fee, there is no penalty for missing a supplemental examination. You should consult your Student Affairs Office for further information. It is important that you also see a faculty adviser to talk about your options and the effects that your request may have on your studies. For more information, see www.mcgill.ca/students/advising.

You must verify the date and time of the supplemental examination, and make yourself available to write the exam. Dates can be found at www.mcgill.ca/students/exams/dates.

Revision, June 2011. Start of revision.

Note for Continuing Studies: Availability of supplemental exams and the conditions under which you will be permitted to take them are different in each academic area.

Revision, June 2011. End of revision.

Note for Faculties of Arts and Science (including B.A. & Sc.): It is important that you also see a Faculty adviser in Dawson Hall to talk about your options and the effects that your request may have on your studies. For more information, see www.mcgill.ca/students/advising.

Note for the Faculty of Engineering: Supplemental examinations are available for courses in the Faculty of Science (including Year 0 (freshman) math and science courses) and the Faculty of Arts. Supplemental examinations are not available for the following Engineering courses: CHEM 233, COMP 208, EPSC 221, MATH 262, MATH 263, MATH 264, MATH 270, MATH 271, MATH 363, MATH 381 and PHYS 271.

Revision, August 2011. Start of revision.

Note for the Faculty of Law: Regular supplemental examinations are available to a student who has failed a course, but who is not required to withdraw from the Faculty. Regular supplemental examinations may be written in up to two courses that do not exceed a total of seven credits together, or in any one course even if it exceeds seven credits. Supplemental examinations are written at the Law Faculty in the month of August. For more information, see Supplemental Examinations at www.mcgill.ca/law-studies/information/exams.

Revision, August 2011. End of revision.

1.7.8 Examinations: Invigilation (Exams from Other Universities)

Upon request, McGill will act as proctor for exams from other universities or professional accreditation associations. Exams are scheduled on weekdays at 9:30 a.m., and cannot be scheduled on evenings, weekends, statutory holidays or McGill holidays. This service is limited to written and paper based exams.
1.7.8.1 The Cost

The cost for invigilation and administration is $80 per student, per exam to be returned in Canada; and $100 for each international exam. Unless otherwise specified by the home institution, you are expected to pay by debit card (bank card) on the day of the exam.

Any student/institution wishing to have the exam returned by courier/express post must provide a prepaid envelope.

1.7.8.2 Setting Up

Information for students: please confirm the exam date at least 2 weeks in advance of the scheduled exam and provide a telephone number and email address. The meeting point with the invigilator is at Enrolment Services - see address below. If your plans change and you decide not to write the exam, you must contact Enrolment Services as soon as possible.

1.7.8.3 Mailing address for exams

Exams and examination booklets, along with full instructions, should be sent to:

McGill University
Enrolment Services, Room MS - 72
3415 McTavish Street
Montreal (QC) H3A 1Y1
Attention: Proctor Exams

Meeting point for students on the day of the exam.

McGill University
Service Point
3415 McTavish Street
Montreal (QC) H3A 1Y1

Telephone: 514-398-2207
Email: proctor.es@mcgill.ca
Website: www.mcgill.ca/students/exams/proctor

1.8 Internships, Exchanges and Co-op Programs

1.8.1 Internships and Co-op Programs

Several faculties at McGill offer undergraduate students the opportunity to participate in an internship or co-op program.

- Faculty of Agricultural and Environmental Sciences students: See Faculty of Agricultural and Environmental Sciences > Internship Opportunities and Co-op Experience.
- Faculty of Arts students: See the Arts Internships website: www.mcgill.ca/arts-internships.
- Faculty of Engineering students: See Faculty of Engineering > Engineering Internship Program. The Department of Mining and Materials Engineering also offers co-op programs in Mining Engineering and Materials Engineering.

Revision, August 2011. Start of revision.

- Faculty of Law students: For information on Human Rights internships, see: www.mcgill.ca/humanrights/clinical/internships.

Revision, August 2011. End of revision.

- Desautels Faculty of Management students: See Desautels Faculty of Management > Course Overlap.
- Faculty of Science students: See Faculty of Science > Internship Programs - Industrial Practicum (IP) and Internship Year in Science (IYS).

1.8.2 Exchange Programs

For information on Exchange Programs, see Field Studies > Exchange Programs.

Note for Arts students: Further information on exchanges and studying away may be obtained from the Arts OASIS website at www.mcgill.ca/oasis.
**Note for Engineering students:** For further information, contact the Faculty of Engineering Student Affairs Office in the Engineering Student Centre, and see [www.mcgill.ca/engineering/student/sao/current/exchange](http://www.mcgill.ca/engineering/student/sao/current/exchange).

Revision, August 2011. Start of revision.

**Note for Law students:** Students should consult [www.mcgill.ca/law-studies/information/exchange](http://www.mcgill.ca/law-studies/information/exchange) for the eligibility criteria.

Revision, August 2011. End of revision.

**Note for Management students:** See also Desautels Faculty of Management > International Student Exchange.

**Note for Science and B.A. & Sc. students:** Further information may be obtained from the SOUSA website at [www.mcgill.ca/science/sousa/general](http://www.mcgill.ca/science/sousa/general).

### 1.8.3 Field Studies

For information on Field Studies, see the Field Studies section.

### 1.8.4 Mobility Award

The Scholarships and Student Aid Office (SSAO) administers all needs-based awards, including the Mobility award. Quebec residents, as well as Canadian and International students participating in an official Exchange, Field Study semester, Study Away, research or Internship program may apply for financial support at the SSAO.

For information on the Mobility Award, see [www.mcgill.ca/studentaid/exchangefunding](http://www.mcgill.ca/studentaid/exchangefunding).

### 1.8.5 Study Abroad Opportunities

For information on Study Abroad, refer to Field Studies > Opportunities for Field Study and Study Abroad in this publication, or see [www.mcgill.ca/students/international](http://www.mcgill.ca/students/international).

### 1.9 Scholarships and Student Aid

The Scholarships and Student Aid Office offers a complete range of merit and need-based awards for entering and in-course undergraduate students. As well, the office administers all federal, provincial and U.S. government student aid programs. For information and links to government websites, see [www.mcgill.ca/studentaid](http://www.mcgill.ca/studentaid). Comprehensive information concerning all undergraduate awards also appears in the Undergraduate Scholarships and Awards Calendar available at [www.mcgill.ca/students/courses/calendars](http://www.mcgill.ca/students/courses/calendars) or from the Scholarships and Student Aid Office.

#### 1.9.1 Entrance Awards for McGill Students

Undergraduate Entrance Scholarships are available to students entering McGill University for the first time in a full-time undergraduate degree program. You should consult [www.mcgill.ca/studentaid/scholarships/prospective](http://www.mcgill.ca/studentaid/scholarships/prospective) for details. Highlights include:

- Entrance Scholarships are entirely merit-based; financial need is not considered.
- Value ranges from $3,000 to $10,000.
- There are two types: the One-Year, where eligibility is based solely on academic achievement; and the renewable Major, based on academic achievement as well as leadership qualities in school and/or community activities.

##### 1.9.1.1 Application Procedures

- **One-Year Scholarships:** by applying to McGill, all eligible applicants are automatically considered. No separate application is required.
- **Major (renewable) Scholarships:** candidates can apply on the web after their application for admission has been submitted and they have received an email acknowledgment.
- You must ensure that you send in all required supporting documentation.
- Dentistry, Law, Medicine and Music applicants should inquire at their own faculty’s admissions office regarding availability of entrance awards.
- If you hold a renewable scholarship from the Committee on Enrolment and Student Affairs, the scholarship is renewed only if you meet the McGill standards for renewal. See [www.mcgill.ca/studentaid/scholarships/prospective/regulation](http://www.mcgill.ca/studentaid/scholarships/prospective/regulation).
1.9.1.2 Need-Based Entrance Financial Aid

This program offers financial aid to students from families of modest means who require assistance to attend McGill. Upon acceptance to the University, first-year, undergraduate degree students can apply for an entrance bursary on Minerva. The value of the entrance bursary depends on the student's degree of need. Since financial need is the primary factor in the selection of aid recipients, applicants for this program are expected to apply for government student aid programs where eligible. For more information, see www.mcgill.ca/studentaid.

1.9.2 In-Course Awards for McGill Students

Faculty scholarships and awards are decided by the faculty scholarships committees. You should consult the appropriate section of the Undergraduate Scholarships and Awards Calendar for regulations and information concerning these awards at www.mcgill.ca/students/courses/calendars, or the following website: www.mcgill.ca/studentaid/scholarships/current.

- Most undergraduate scholarships and awards are granted on the basis of the combined GPA for the Fall and Winter terms (i.e., your sessional GPA), or a ranking in the top 5% of the faculty, subject to the faculty's budget. Applications are not required unless specifically indicated in the terms of an award.
- To be considered for in-course awards and/or the renewal of entrance scholarships, you must complete at least 27 graded credits in the regular academic year. Courses completed under the Satisfactory/Unsatisfactory (S/U) option, and Summer courses, are not considered. Program content and number of credits may also be considered.
- Up to a maximum of 6 credits from courses taken at other Quebec universities through the Inter-University Transfer (IUT) agreement can be counted towards the requirements for scholarship renewal or for consideration for other academic awards. Eligibility is based on all courses taken during the regular academic year, on both the McGill GPA and the global GPA, which includes the IUT credits.
- You should review all regulations regarding in-course awards by consulting www.mcgill.ca/studentaid/scholarships/current/eligibility.
- A maximum of the top 10% of students in each faculty are named to the Dean's Honour List. This designation is based on the combined GPA for the Fall and Winter terms (i.e., your sessional GPA) and the minimum required combined GPA is determined by each faculty. It is an official University recognition of the student's achievements and appears on the transcript. There is no monetary reward.
- All awards, with the exception of prizes, are credited to the tuition fee accounts of students for the following academic year. Students must be registered on a full-time basis to receive the funds.
- If you hold a renewable scholarship from the Committee on Enrolment and Student Affairs, it will only be renewed if you meet the McGill standards for renewal. See www.mcgill.ca/studentaid/scholarships/prospective/regulation.

1.9.2.1 Need-Based Entrance Financial Aid

This program offers financial aid to students from families of modest means who require assistance to attend McGill. Upon acceptance to the University, first-year, undergraduate degree students can apply for an entrance bursary on Minerva. The value of the entrance bursary depends on the student's degree of need. Since financial need is the primary factor in the selection of aid recipients, applicants for this program are expected to apply for government student aid programs where eligible.

The University offers an In-Course Financial Aid program to full-time undergraduate degree students on the basis of demonstrated financial need. This aid includes bursaries, short- and long-term loans and a Work Study Program. To be considered for McGill financial aid, the University recommends that applicants apply for the maximum government student assistance for which they are eligible. The Scholarships and Student Aid Office oversees all provincial, federal and U.S. student aid programs and disburses government funds.

Student Aid Counsellors are available for consultation on an individual basis to provide advice on budgeting and debt management, and to award financial assistance to needy and deserving students. For more information, see www.mcgill.ca/studentaid.

1.9.3 Work Study Program

The Work Study Program provides students with financial assistance through part-time employment on campus. Students are accepted into the program based primarily on financial need, though academic standing is also considered. There are a variety of Work Study positions available, ranging from clerical work in an administrative office to research with a professor. In addition to helping you cope with your financial obligations, Work Study also provides practical work experience that may enhance future employment opportunities.

Further information is available on McGill’s Work Study website at www.mcgill.ca/studentaid/workstudy and at the Scholarships and Student Aid Office:

William & Mary Brown Student Services Building
3600 McTavish Street, Suite 3200
Montreal, QC H3A 1Y2 Canada

Telephone: 514-398-7297
Email: work.study@mcgill.ca
Website: www.mcgill.ca/studentaid/workstudy

1.9.3.1 Student Aid

Telephone: 514-398-6013
Email: student.aid@mcgill.ca
1.10 Graduation

In order to graduate, you must complete faculty and program requirements. It is your responsibility to meet all faculty and program requirements before graduation.

At the time of graduation from an undergraduate degree, you must be in Satisfactory standing with a minimum CGPA of 2.00.

You should contact your adviser (Music students should contact the Senior Student Adviser; graduate students should contact the Graduate Program Director) early in the graduating year to make sure you will meet your program requirements by graduation time. For contact information on advisers, see www.mcgill.ca/students/advising/advisordirectory.

Minimum Residency Requirement

The total number of McGill credits required to graduate is known as the minimum residency requirement. You must successfully complete a minimum of 60 McGill credits in order to obtain a McGill undergraduate degree. Some programs have specific requirements on the type of credits that must be completed at McGill. For example, two thirds of all program requirements must be completed at McGill. For specific information refer to your faculty section of this publication.

Students completing a second undergraduate degree at McGill must successfully complete a minimum of 60 McGill credits to obtain their degree. You should check with your Faculty adviser for any conditions applicable to the McGill credits required towards your degree.

Graduate students should refer to the Graduate and Postdoctoral Studies Calendar for information on minimum residency requirements for graduate programs.

Revision, June 2011. Start of revision.

Note for Continuing Studies: Minimum Residency Requirement (Continuing Studies):

- You must successfully complete a minimum of 21 McGill credits (excluding pre-requisites and co-requisites) in order to obtain a McGill undergraduate certificate. For specific information refer to your department section of this publication.
- Students completing a second undergraduate certificate at McGill must successfully complete a minimum of 21 McGill credits (excluding pre-requisites and co-requisites) in order to obtain their certificate. You should check with your advisor for any conditions applicable to the McGill credits required towards your certificate.

Revision, June 2011. End of revision.

1.10.1 Graduation Honours: Dean's Honour List

If you are graduating with an undergraduate degree, you may be awarded the designation Dean's Honour List under the following conditions:

1. you have completed a minimum of 60 McGill credits towards your degree; and
2. you are in the top 10% of the faculty's graduating class of students; this calculation is based on the CGPA.

Note for transfer students: This designation may be withdrawn if your CGPA at another university or in another faculty at McGill is not comparable to the CGPA earned in your graduating faculty.

1.10.2 Graduation Honours: Distinction

If you are graduating with an undergraduate degree, you may be awarded the designation Distinction under the following conditions:

1. you have completed a minimum of 60 McGill credits towards your degree; and
2. you are in the top 25%, but below the top 10%, of your faculty's graduating class of students; this calculation is based on the CGPA.

Note for transfer students: This designation may be withdrawn if your CGPA at another university or in another faculty at McGill is not comparable to the CGPA earned in your graduating faculty.

Revision, August 2011. Start of revision.
Revision, August 2011. End of revision.

Note: The designation of Great Distinction is no longer awarded at graduation. Prior to September 2009, Distinction and Great Distinction were awarded at graduation according to faculty-specific regulations. You can find these rules in the faculty chapters of the 2008-2009 Undergraduate Programs Calendar or any earlier version at www.mcgill.ca/students/courses/calendars.

1.10.3 Graduation Honours: Faculty of Science Dean’s Multidisciplinary Undergraduate Research List

The Dean's Multidisciplinary Undergraduate Research List recognizes Bachelor of Science (B.Sc.) students who have participated in substantial and broad undergraduate research. To be placed on the Dean's Multidisciplinary Undergraduate Research List at graduation time:

- you must have completed at least 9 credits of research-based courses, taken for a letter grade,
- where qualifying courses are specified in the list of approved research courses (see www.mcgill.ca/science/ours/researchcourses).

Furthermore, considering all qualifying research-based courses on your transcript at graduation time:

- at least one course, worth at least 3 credits, must be from a different unit than the other research-based courses; and
- every qualifying course must have been completed with a grade of C or above; and
- the average GPA over all qualifying courses must be 3.0 or above.

If these requirements are met, the mention "Dean's Multidisciplinary Undergraduate Research List" will be recorded on your transcript at graduation time. No application is necessary; all B.Sc. graduating students' records are considered by the Office for Undergraduate Research in Science.

1.10.4 Graduation Honours: Honours and First-Class Honours

1.10.4.1 Graduation Honours: Honours and First-Class Honours for Faculties of Arts and Science (including B.A. & Sc.)

As a graduating student registered in an Honours program, you may be recommended for Honours or First-Class Honours by your department(s) to the Faculty, under the following conditions only:

- you must complete all requirements imposed by the department;
- for Honours, the CGPA at graduation must be at least 3.00;
- for First-Class Honours, the CGPA at graduation must be 3.50 or better;
- students in a Joint Honours program must satisfy the above criteria for both Joint Honours components;
- some departments have additional requirements which must be met before you are recommended for Honours or First-Class Honours (see the departmental entries).

Students in an Honours program whose program GPA or CGPA is below 3.00, or who did not satisfy certain additional program requirements, must consult their adviser to determine if they are eligible to graduate in a program other than Honours.

1.10.5 Apply to Graduate

Most undergraduate students and non-thesis graduate students (master's, certificates, diplomas) must use Minerva (www.mcgill.ca/minerva) to apply to graduate (go to Student Records > Apply for Graduation for Your Primary Curriculum.) It is your responsibility to inform McGill of your intention to graduate. You need a minimum residency requirement of 60 credits at McGill to qualify for a McGill undergraduate degree. For more information see section 1.10: Graduation. The minimum CGPA required to graduate is 2.00, and you must be in Satisfactory Standing.

The Application for Graduation is available on Minerva when you register for your final year (e.g. U3 or U4), except if you are in the Faculty of Medicine or Faculty of Dentistry, where you are automatically flagged for graduation in your final year. For more information on how to apply on Minerva, go to www.mcgill.ca/students/graduation/applying.

Once you apply to graduate, you are authorizing the University to include your name in the Convocation program. If you want your name to be omitted from this publication you must send an email to Enrolment Services at studentrecords@mcgill.ca by March 15 for Spring convocation, and September 15 for Fall convocation.

1.10.5.1 Deadlines:

- Fall term graduation (courses completed in December; transcript will indicate "degree granted" in February; Spring convocation): You must apply on Minerva by the end of November.
- Winter term graduation (courses completed in April; transcript will indicate “degree granted” in May; Spring convocation): You must apply on Minerva by the end of February.
Summer term graduation (courses completed by August; transcript will indicate "degree granted" in October; Fall convocation): You must apply on Minerva by the end of March.

If you miss one of these deadlines, contact your Faculty Student Affairs Office immediately.

**Note for the Faculties of Arts and Science (including B.A. & Sc.):** Requests are made at the Service Point (3415 McTavish Street). However, it is important that you also see a Faculty adviser in Dawson Hall to talk about your options and the effects that your request may have on your studies. For more information, see www.mcgill.ca/students/advising.

**Revision, June 2011. Start of Revision.**

**Note for Continuing Studies:** The minimum residency requirement of 60 credits does not apply to the School of Continuing Studies certificates and diplomas.

**Revision, June 2011. End of Revision.**

**Revision, August 2011. Start of Revision.**

**Note for Graduate and Postdoctoral Studies:** If you miss one of these deadlines, you must follow the procedures at www.mcgill.ca/gps/students/nonthesis. The Application for Graduation is available on Minerva for students in non-thesis programs who have registered for their final year. To ensure that you have met the requirements for graduation, you should refer to Program Requirements > Master's Degrees, found under each Faculty's Graduate and Postdoctoral Studies section.

**Revision, August 2011. End of Revision.**

### 1.10.6 Graduation Approval Query

As a graduating student, you can view the status of your graduation record on Minerva ([www.mcgill.ca/minerva](http://www.mcgill.ca/minerva)) during the Faculty review and approval process (go to Student Records > Graduation Approval Query). The Graduation Approval Query form becomes available to graduating students approximately three to four weeks before the Degree Granted notation is updated on their records.

If you have met all requirements for graduation, your student record on Minerva will display the Degree Granted notation at the appropriate time:

- Late February, for Fall term graduation (Convocation in Spring).
- Late May, for Winter term graduation (Convocation in Spring).
- Late October, for Summer term graduation (Convocation in Fall).

See [www.mcgill.ca/convocations](http://www.mcgill.ca/convocations) for information regarding convocation ceremonies.

### 1.10.7 Replacement Diploma

If your diploma was lost, damaged, or the name on the diploma should be changed, you can request a replacement diploma. You must send a written request plus a certified cheque or money order for CAD$60, payable to McGill University. You should refer to the sections below to determine which situation applies to you. Send your request to:

Enrolment Services  
Duplicate Diploma Request  
McGill University  
3415 McTavish Street  
Montreal (QC) H3A 1Y1  

Email: servicepoint@mcgill.ca

Please note that requests made on behalf of a student must be accompanied by a signed letter of authorization from the student.

**To replace a lost diploma:** You must provide a sworn affidavit from a notary, a lawyer or a commissioner of oaths certifying that the diploma is lost. The affidavit must include: your full name; student number; address; phone number; date of birth; degree granted/year granted; and reason for a replacement diploma.

**To replace a damaged diploma or change the name on the diploma:** You must send or deliver the original diploma, and your letter must include the following information: full name; student number; address; phone number; date of birth; reason for a replacement diploma; and any corrections, additions or deletions.

**For name changes:** You must include clear and complete photocopies of legal documents supporting your name change request. Please see section 1.3.8: Name: Legal Name for the list of acceptable documents. Note that the name change must be processed in the University system before a duplicate diploma can be issued.

**To request certified copies of a diploma:** McGill provides only one original diploma per student. However, you may obtain certified copies of your diploma. Simply photocopy your original diploma on 8.5” x 11” paper in landscape mode, making certain to reduce it so that all seals and signatures are visible.
Enrolment Services will certify as many copies as required at no charge. A cover letter bearing your signature and including your full name, student number, address and phone number is required for mail or fax requests. Note that certified copies of your diploma are not sent by fax or email.

**To request a translation of a diploma:** McGill can provide you certified English or French translations of your diploma as required, free of charge. Please send us a written request specifying the degree to be translated and how many copies you need. You should ensure to include your complete name, address, date of birth and signature. You must allow at least a week for processing and mailing. Note that translated diplomas are not sent by fax or email.

### 1.10.8 Aegrotat Standing and Degree at McGill University

Aegrotat standing is awarded in rare cases where a student, based on serious medical or similar evidence, is unable to complete course requirements within a reasonable time, or at all.

At McGill, this designation is currently applied toward the end of a student’s degree program resulting in the awarding of an aegrotat degree. An aegrotat indicator of “Y” at graduation signifies that a student was awarded such a degree. An aegrotat degree is awarded only to students in good standing who have been unable to complete their degree due to special circumstances. Information on this degree designation is included only in the convocation program, and not on the transcript.

Aegrotat standing is rarely granted at McGill University. A formal request must be submitted to the Dean of the faculty in which the student is registered during the graduating year. The approval of the Dean and the Deputy Provost, Student Life and Learning, is necessary to grant this status.

### 1.11 Admission to Professional and Graduate Studies

If you intend to proceed into Dentistry, Law or Medicine, consult the faculties concerned about their prerequisites for admission.

#### 1.11.1 Language Requirements for Professions

Quebec law requires that candidates seeking admission to provincially recognized professional corporations* must be able to communicate verbally and in writing in French. To demonstrate a working knowledge of French, the professional corporation requires one of the following:

**Revision, June 2011. Start of revision.**

- Evidence that you have completed three years of full-time instruction in a French post-primary school.
- A certificate that shows you completed your secondary education in Quebec in 1986 or later.
- Successful completion of a written examination set by Quebec’s Office québécois de la langue française (OQLF). See below for more information.

If you are a registered student and are within two years of graduating with a degree that will give you access to a professional corporation, you can write the OQLF examination. You should contact Enrolment Services for an application form. Examinations take place every three months and may be attempted an unlimited number of times. Priority is given to students closest to graduation.

More information may be obtained from the Office québécois de la langue française, 125 Sherbrooke Street West, Montreal, Quebec, H2X 1X4. Telephone: 514-873-6565. Website: [www.oqlf.gouv.qc.ca](http://www.oqlf.gouv.qc.ca).

If you need to acquire a functional level of proficiency in French, you can take courses from either the French Language Centre (Faculty of Arts [www.mcgill.ca/flc](http://www.mcgill.ca/flc)) or the School of Continuing Studies, 688 Sherbrooke Street West, telephone: 514-398-6200 ([www.mcgill.ca/conted](http://www.mcgill.ca/conted)).

If you are already strong in French and want to maintain or improve your proficiency, you may consider taking courses in the Department of French Language and Literature, Faculty of Arts or the School of Continuing Studies.

**Note:** You cannot apply non-credit language courses, and certain credit language courses, completed at the School of Continuing Studies to program/degree requirements. Consult your faculty for clarification.

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* McGill degrees and diplomas currently give access to corporations regulating the activities of the following professional groups:

**Revision, June 2011. End of revision.**

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<tr>
<th>Agrologists</th>
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<td>Architects</td>
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<td>Chartered Accountants</td>
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<td>Chartered Appraisers</td>
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<td>Engineers</td>
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1.12 Undergraduate Advising

McGill offers students access to a variety of advisers, mentors and counselors with different skills, expertise, and levels of authority. To help determine whether you need to speak to a faculty adviser, departmental/school adviser, professor/lecturer or peer adviser, see section 1.12.2: The Role of Student Advising and section 1.12.3: Types of Advising and Advisers.

1.12.1 Advising and the University Mission

The Mission Statement of the University expresses the commitment to offer students the best education available. An essential component of this is the advising process. Because advising takes place in many ways and locations at McGill, it is important that you learn about the different types of advisers (see Types of Advising and Advisers) and how they can help you reach your goals.

1.12.2 The Role of Student Advising

Your active participation in the advising process is essential for accessing the full range of academic opportunities during your studies. You must be proactive in seeking meetings with various advisers, professors, and counselors to ensure that you receive the advice you need to formulate a personal plan of study and to meet your academic goals. While advisers are there to provide you with guidance, you are ultimately responsible for meeting your degree or diploma requirements. It is your responsibility to learn the rules and regulations of the University, your faculty, and your program. With your cooperation, advisers and counselors will assist you throughout your undergraduate studies.

1.12.3 Types of Advising and Advisers

While at McGill, you have access to a variety of advisers, mentors and counselors who have different skills, expertise, and levels of authority. You can talk about your situation freely with your advisers; they will respect your wish for confidentiality. Typical types of advisers are described below. You should refer to your faculty's section of this publication for additional advising information specific to your degree program. Note that some academic matters require approval of more than one adviser, e.g., the faculty adviser and the department/school academic adviser.

**Faculty Advisers** normally located in the Student Affairs Office of each faculty and are available throughout the calendar year (section 1.12.6: Faculty Student Affairs Offices).

Faculty advisers:
- Are experts in the rules, regulations, and requirements pertaining to specific degree programs.
- Provide ongoing advice and guidance on program selection, course registration, credit load, deadlines, and majors and minors.
- Offer help managing academic situations during periods of personal, financial, or medical difficulties, by working with you to identify various possibilities and strategies for making informed decisions.
- Communicate with other advisers within the University and, with your permission, serve as a direct link to other University resources.
- May assist you in planning for, and applying to, university exchange programs and may also provide, or direct you to, information about scholarships, awards, research fellowships, and opportunities within a given field.
- Are a valuable source of information about the various resources available at McGill.
- Offer support, guidance and appropriate referral to help you manage academic situations during periods of personal, financial, or medical difficulties, and identify various possibilities and strategies for making informed decisions.

**Department/School Academic Advisers** are normally located closer to the offices of professors in your program and may only be available during specific times of the year (e.g., prior to registration for the next session or during the add/drop period) or during regularly scheduled office hours. If you are completing a major or minor in more than one unit, you will likely have an adviser in each unit. The departmental academic adviser may be either a professor or a member of the administrative staff. You should contact your department's administrative office to determine the identity and availability of your academic adviser. You should check your progress with your departmental academic adviser from time to time - and certainly before your final year (section 1.12.5: Contact Information for Advising).

Departmental academic advisers:

<table>
<thead>
<tr>
<th>Geologists</th>
<th>Speech Therapists and Audiologists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Administration Accountants</td>
<td>Urbanists</td>
</tr>
<tr>
<td>Industrial Relations Counsellors</td>
<td>Vocational Guidance Counsellors</td>
</tr>
</tbody>
</table>
• Guide you through course selection to meet the subject matter requirements of the major or minor.
• Consider requests for course equivalencies, recommend prior approval for inter-university transfer credits, or explain the rationale for the design of a department/school program.
• May assist you in planning for, and applying to, university exchange programs, and may also provide, or direct you to, information about scholarships, awards, research fellowships, and opportunities within a given field.
• Are a valuable source of information about the various resources available at McGill.
• Can provide support, guidance, and appropriate referrals if you experience academic or personal difficulties while studying at McGill.
• Are often responsible for confirming that you have met major or minor program requirements for graduation.

Professors/Lecturers may act in a voluntary capacity to mentor you as you progress through your program. The faculty adviser or department/school academic adviser may be able to help you identify a good resource person in your program.

Professors/lecturers:
• May provide advice on the latest trends in a specific field of study and make recommendations on related advanced readings.
• May discuss opportunities for a student research experience and help you connect with a professor or lecturer who best suits your interests or learning style.
• Refer you back to the faculty adviser or departmental academic adviser for signatures and permission related to program requirements.

Peer Advisers are students who have been trained by faculty advisers or department/school academic advisers. They normally offer drop-in hours for advice on University life and will help you find the information you need in this publication or through other University resources. Peer advisers are only available in some faculties or departments.

1.12.3.1 Related Services
The First-Year Office (FYO) (Brown Student Services Building; www.mcgill.ca/firstyear) can help new students navigate their way through this publication and the information contained in the Welcome to McGill book (www.mcgill.ca/newstudents). They help newly admitted students prepare for the course registration period on Minerva. To maximize this help, you are strongly urged to read the sections in the Welcome to McGill book that apply to your faculty. The FYO staff are always available to provide advice and referrals to the many support mechanisms at McGill.

Counselling Service (Brown Student Services Building; www.mcgill.ca/counselling) has professional counsellors and psychologists who are available to discuss personal, academic and career goals or problems. They provide individual counselling, therapy, psychoeducational workshops, and crisis intervention. A walk-in service is available.

Career Planning Service (CaPS) (Brown Student Services Building; www.mcgill.ca/caps) provides career education, guidance, and individual advising to help you in your search for permanent, part-time, or summer jobs and internships.

Enrolment Services (Service Point, 3415 McTavish Street, Montreal (QC) H3A 1Y1; 514-398-7878; www.mcgill.ca/student-records) is the place to start if you have questions related to credits on entrance or advanced standing based on previous studies.

On the Macdonald Campus, information is provided by the Student Affairs Office, Laird Hall, Room 106; www.mcgill.ca/macdonald.

1.12.4 Student-For-A-Day Program
If you visit our downtown campus in October/November (Fall term) or February/March (Winter term), you can choose to sit in on a class that is open to visitors and experience McGill from a student's perspective.

You do not need to pre-register: consult the list of courses available at www.mcgill.ca/visiting/studentforaday and select the courses you wish to attend. Pick up your Student-For-A-Day pass at the Welcome Centre on the day of your visit. Please note that only 100-level and 200-level lectures are available. For further information, contact the Welcome Centre (514-398-6555).

If you visit the Macdonald Campus, you can participate in the Student-For-A-Day program that provides a total immersion in the Macdonald experience. Prospective students tour the campus, sit in on classes, meet professors and students, and visit labs, facilities and residences. For further information, please contact the Macdonald Campus Student Affairs Office at studentinfo.macdonald@mcgill.ca or at 514-398-7925. Tours can be booked directly at: https://mcgillinmind.mcgill.ca/mcgill/campustours/.

1.12.5 Contact Information for Advising
In general, contact your Faculty Student Affairs Office if you have any questions on programs.

1.12.6 Faculty Student Affairs Offices

Faculty of Agricultural and Environmental Sciences

Telephone: 514-398-7925 or 514-398-7928
Email: studentinfo.macdonald@mcgill.ca
Website: www.mcgill.ca/macdonald
Faculty of Arts

Office of Advising and Student Information Services (OASIS)
Telephone: 514-398-1029
Newly admitted students email: newstudentadvising.arts@mcgill.ca
Returning students email: adviser.arts@mcgill.ca
Website: www.mcgill.ca/oasis

Students in U1 or above should also see the contact information for departmental academic advisers in section 1.12.7: Contact Information for Departments, Schools and Programs for Students in the Faculty of Arts (or the B.A. & Sc. Degree).

Faculty of Education

Telephone: 514-398-7042
Email: sao.education@mcgill.ca
Website: www.mcgill.ca/edu-sao

Faculty of Engineering

McGill Engineering Student Centre (Student Affairs Office, Career Centre, and Peer Tutoring Service) 514-398-7257
Architecture 514-398-6702
Chemical Engineering 514-398-4494
Civil Engineering and Applied Mechanics 514-398-6345
Electrical and Computer Engineering 514-398-3943
General Engineering 514-398-7257
Mechanical Engineering 514-398-8070
Mining and Materials Engineering Mining: 514-398-2215
Materials: 514-398-1040
Urban Planning 514-398-4075

Email: adviser@engineering.mcgill.ca or information@engineering.mcgill.ca
Website: www.mcgill.ca/engineering

Note: You are required to meet with an academic adviser before the start of classes. If you are admitted to Year 0 and you are seeking transfer credits, you are initially advised by the Student Affairs Office, Engineering Student Centre, followed by advising in your department. If you are admitted to Year 0 and you are not seeking transfer credits, or if you are admitted to Year 1, you should contact the department/school directly.

Revision, August 2011. Start of revision.

Faculty of Law

Telephone: 514-398-6608 or 514-398-3544
Email: info.law@mcgill.ca
Website: www.mcgill.ca/law-studies

Revision, August 2011. End of revision.

Desautels Faculty of Management

Telephone: 514-398-4068
Email: bcom.mgmt@mcgill.ca
Website: www.mcgill.ca/desautels/bcom
### Faculty of Religious Studies

- **Telephone:** 514-398-4121
- **Email:** info.relgstud@mcgill.ca
- **Website:** [www.mcgill.ca/religiousstudies](http://www.mcgill.ca/religiousstudies)

### Schulich School of Music

- **Telephone:** 514-398-4541
- **Email:** studentaffairs.music@mcgill.ca
- **Website:** [www.mcgill.ca/music/current-students/undergraduate](http://www.mcgill.ca/music/current-students/undergraduate)

### Faculty of Science

Science Office for Undergraduate Student Advising (SOU SA)
- **Telephone:** 514-398-5442
- **Email:** newstudentadvising.science@mcgill.ca for newly admitted students only
- **Email:** adviser.science@mcgill.ca
- **Website:** [www.mcgill.ca/science/sousa](http://www.mcgill.ca/science/sousa)

Students in U1 or above should also see the contact information for departmental academic advisers in **section 1.12.10: Contact Information for Departments, Schools and Programs for Students in the Faculty of Science (or the B.A. & Sc. Degree)**.

#### 1.12.7 Contact Information for Departments, Schools and Programs for Students in the Faculty of Arts (or the B.A. & Sc. Degree)

**U0 students:** Contact the Faculty of Arts Student Affairs Office for advising on the Arts freshman program or the B.A. & Sc. freshman program.

**U1 students or any other year:** Contact the department (school or program) directly for academic advising. You can find additional contact information in the relevant sections of this publication.

### African Studies (program)

- **Telephone:** 514-398-4804
- **Email:** ids@mcgill.ca
- **Website:** [www.mcgill.ca/isid/undergraduate/afri](http://www.mcgill.ca/isid/undergraduate/afri)

### Anthropology (Department of)

- **Telephone:** 514-398-4300
- **Email:** diane.mann@mcgill.ca
- **Website:** [www.mcgill.ca/anthropology](http://www.mcgill.ca/anthropology)

### Art History & Communication Studies (Department of)

- **Telephone:** 514-398-1828
- **Email:** undergrad.ahcs@mcgill.ca
- **Website:** [www.mcgill.ca/ahcs](http://www.mcgill.ca/ahcs)

### Canadian Ethnic and Racial Studies (program)

- **Telephone:** 514-398-6853
- **Email:** morton.weinfeld@mcgill.ca
<table>
<thead>
<tr>
<th>Program</th>
<th>Telephone</th>
<th>Email</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canadian Studies (program)</td>
<td>514-398-8346</td>
<td><a href="mailto:adriana.goreta@mcgill.ca">adriana.goreta@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/misc">www.mcgill.ca/misc</a></td>
</tr>
<tr>
<td>Catholic Studies (program)</td>
<td>514-398-4400 x09557</td>
<td><a href="mailto:interdisciplinary.arts@mcgill.ca">interdisciplinary.arts@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/catholicstudies">www.mcgill.ca/catholicstudies</a></td>
</tr>
<tr>
<td>Classics (program)</td>
<td>514-398-3975</td>
<td><a href="mailto:undergrad.history@mcgill.ca">undergrad.history@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/classics">www.mcgill.ca/classics</a></td>
</tr>
<tr>
<td>Computer Science (School of)</td>
<td>514-398-7071 ext. 00739</td>
<td><a href="mailto:ugrad-sec@cs.mcgill.ca">ugrad-sec@cs.mcgill.ca</a></td>
<td><a href="http://www.cs.mcgill.ca">www.cs.mcgill.ca</a></td>
</tr>
<tr>
<td>East Asian Studies (Department of)</td>
<td>514-398-6742</td>
<td><a href="mailto:asian.studies@mcgill.ca">asian.studies@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/eas">www.mcgill.ca/eas</a></td>
</tr>
<tr>
<td>Economics (Department of)</td>
<td>514-398-4800</td>
<td><a href="mailto:undergraduate.economics@mcgill.ca">undergraduate.economics@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/economics">www.mcgill.ca/economics</a></td>
</tr>
<tr>
<td>Education for Arts Students (program)</td>
<td>514-398-7042</td>
<td><a href="mailto:sao.education@mcgill.ca">sao.education@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/edu-sao/new/programs/minorseducation">www.mcgill.ca/edu-sao/new/programs/minorseducation</a></td>
</tr>
<tr>
<td>Educational Psychology (program)</td>
<td>514-398-4248</td>
<td><a href="mailto:dean.thomson@mcgill.ca">dean.thomson@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/edu-ecp">www.mcgill.ca/edu-ecp</a></td>
</tr>
<tr>
<td>Department/Program</td>
<td>Telephone</td>
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<td>Website</td>
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</tr>
<tr>
<td>English (Department of)</td>
<td>514-398-6550 or 398-6557</td>
<td><a href="mailto:sina.troiano@mcgill.ca">sina.troiano@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/english">www.mcgill.ca/english</a></td>
</tr>
<tr>
<td>Environment (School of)</td>
<td>514-398-4306</td>
<td><a href="mailto:kathy.roulet@mcgill.ca">kathy.roulet@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/mse">www.mcgill.ca/mse</a></td>
</tr>
<tr>
<td>French Language and Literature (Department of)</td>
<td>514-398-6885</td>
<td><a href="mailto:lucie.marion@mcgill.ca">lucie.marion@mcgill.ca</a></td>
<td><a href="http://litterature.mcgill.ca">http://litterature.mcgill.ca</a></td>
</tr>
<tr>
<td>Geography (Department of)</td>
<td>514-398-4951 or 398-4111</td>
<td><a href="mailto:undergrad.geog@mcgill.ca">undergrad.geog@mcgill.ca</a></td>
<td><a href="http://www.geog.mcgill.ca">www.geog.mcgill.ca</a></td>
</tr>
<tr>
<td>German Studies (Department of)</td>
<td>514-398-3650</td>
<td><a href="mailto:german.studies@mcgill.ca">german.studies@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/german">www.mcgill.ca/german</a></td>
</tr>
<tr>
<td>Hispanic Studies (Department of)</td>
<td>514-398-6683</td>
<td><a href="mailto:hispanic.studies@mcgill.ca">hispanic.studies@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/hispanic">www.mcgill.ca/hispanic</a></td>
</tr>
<tr>
<td>History (Department of)</td>
<td>514-398-3975</td>
<td><a href="mailto:undergrad.history@mcgill.ca">undergrad.history@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/history">www.mcgill.ca/history</a></td>
</tr>
<tr>
<td>History and Philosophy of Science (program)</td>
<td>514-398-4400 x09557</td>
<td><a href="mailto:interdisciplinary.arts@mcgill.ca">interdisciplinary.arts@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/hpsc">www.mcgill.ca/hpsc</a></td>
</tr>
</tbody>
</table>
### Humanistic Studies (program)

- **Telephone:** 514-398-4400 x09557
- **Email:** humanisticstudies.arts@mcgill.ca
- **Website:** [www.mcgill.ca/humanistic](http://www.mcgill.ca/humanistic)

### Industrial Relations (program)

- **Telephone:** 514-398-4400 x09557
- **Email:** interdisciplinary.arts@mcgill.ca
- **Website:** [www.mcgill.ca/indr](http://www.mcgill.ca/indr)

### International Development Studies (program)

- **Telephone:** 514-398-4804
- **Email:** ids@mcgill.ca
- **Website:** [www.mcgill.ca/isid/undergraduate/intd](http://www.mcgill.ca/isid/undergraduate/intd)

### Islamic Studies (Institute of)

- **Telephone:** 514-398-6077
- **Email:** info.islamics@mcgill.ca
- **Website:** [www.mcgill.ca/islamicstudies](http://www.mcgill.ca/islamicstudies)

### Italian Studies (Department of)

- **Telephone:** 514-398-3953
- **Email:** italian.studies@mcgill.ca
- **Website:** [www.mcgill.ca/italian](http://www.mcgill.ca/italian)

### Jewish Studies (program)

- **Telephone:** 514-398-6543
- **Email:** stefka.iorgova@mcgill.ca
- **Website:** [www.mcgill.ca/jewishstudies](http://www.mcgill.ca/jewishstudies)

### Latin American and Caribbean Studies (program)

- **Telephone:** 514-398-4804
- **Email:** ids@mcgill.ca
- **Website:** [www.mcgill.ca/isid/undergraduate/lacs](http://www.mcgill.ca/isid/undergraduate/lacs)

### Linguistics (Department of)

- **Telephone:** 514-398-4222
- **Email:** dept.linguistics@mcgill.ca
- **Website:** [www.mcgill.ca/linguistics](http://www.mcgill.ca/linguistics)
Mathematics & Statistics (Department of)

Telephone: 514-398-3800
Email: undergrad.mathstat@mcgill.ca
Website: www.math.mcgill.ca

Middle East Studies (program)

Telephone: 514-398-6077
Email: laila.parsons@mcgill.ca
Website: www.mcgill.ca/mes

Music (program)

Telephone: 514-398-4535 ext. 6333
Email: bruce.minorgan@mcgill.ca
Website: www.mcgill.ca/music/current-students/undergraduate

North American Studies (program)

Telephone: 514-398-4400 ext. 9557
Email: interdisciplinary.arts@mcgill.ca
Website: www.mcgill.ca/nast

Philosophy (Department of)

Telephone: 514-398-6060
Email: info.philosophy@mcgill.ca
Website: www.mcgill.ca/philosophy

Philosophy and Western Religions (program)

Telephone: 514-398-4400 x09557
Email: interdisciplinary.arts@mcgill.ca
Website: www.mcgill.ca/phwr

Political Science (Department of)

Telephone: 514-398-4800 or 514-398-4183
Email: della.maharajh@mcgill.ca
Website: www.mcgill.ca/politicalscience

Psychology (Department of)

Telephone: 514-398-6100
Email: info@psych.mcgill.ca
Website: www.psych.mcgill.ca
### Québec, Études sur le (program)

- **Telephone:** 514-398-4400 x09557
- **Email:** quebecstudies.arts@mcgill.ca
- **Website:** www.mcgill.ca/qcst

### Religious Studies (program)

- **Telephone:** 514-398-4121
- **Email:** web.relgstud@mcgill.ca
- **Website:** www.mcgill.ca/religiousstudies

### Russian & Slavic Studies (Department of)

- **Telephone:** 514-398-3639
- **Email:** russian.slavicstudies@mcgill.ca
- **Website:** www.mcgill.ca/russian

### Science for Arts Students (program)

- **Telephone:** 514-398-4109
- **Email:** nancy.nelson@mcgill.ca

### Sexual Diversity Studies (program)

- **Telephone:** 514-398-3911
- **Email:** info.igsf@mcgill.ca
- **Website:** www.mcgill.ca/igsf/programs/sdst

### Social Studies of Medicine (program)

- **Telephone:** 514-398-6033
- **Email:** ssom@mcgill.ca
- **Website:** www.mcgill.ca/ssom

### Social Work (School of)

- **Telephone:** 514-398-7070
- **Email:** undergraduate.socialwork@mcgill.ca
- **Website:** www.mcgill.ca/socialwork

### Sociology (Department of)

- **Telephone:** 514-398-6868
- **Email:** giovanna.terrasi@mcgill.ca
- **Website:** www.mcgill.ca/sociology
### Women's Studies (program)

- **Telephone:** 514-398-3911
- **Email:** info.igsf@mcgill.ca
- **Website:** [www.mcgill.ca/igsf/programs/wmst](http://www.mcgill.ca/igsf/programs/wmst)

### World Cinemas (program)

- **Telephone:** 514-398-4400 x09557
- **Website:** [www.mcgill.ca/worldcinemas](http://www.mcgill.ca/worldcinemas)

### Contact Information for Departments and Programs for Students in the Faculty of Education (B.Ed. & B.Sc. (Kinesiology) Degree)

All students in the Faculty of Education are required to meet with an Academic Adviser prior to the start of classes. Additional contact information is located in the relevant sections of this publication.

#### Kindergarten & Elementary Program

- **Telephone:** 514-398-4527
- **Email:** advisedise.education@mcgill.ca

#### Secondary English, Mathematics, Social Studies or Science & Technology

- **Telephone:** 514-398-4527
- **Email:** advisedise.education@mcgill.ca

#### Teaching English as a Second Language

- **Telephone:** 514-398-4527
- **Email:** advisedise.education@mcgill.ca

#### Music

- **Telephone:** 514-398-4527
- **Email:** advisedise.education@mcgill.ca

#### Concurrent B.Mus./B.Ed.

- **Telephone:** 514-398-4527
- **Email:** advisedise.education@mcgill.ca

#### Concurrent B.Sc./B.Ed.

- **Telephone:** 514-398-4527
- **Email:** advisedise.education@mcgill.ca
1.12.9 Contact Information for Departments, Schools and Programs for Students in the Faculty of Engineering

All students in the Faculty of Engineering are required to meet with an Academic Adviser prior to the start of classes.

**U0 students (seeking transfer credits):** You are initially advised by the Faculty of Engineering Student Affairs Office, followed by advising in your department/school.

**U0 students (not seeking transfer credits) and U1 students:** Contact your department/school directly.

Additional contact information can be found in the relevant sections of this publication.

### Architecture

- Telephone: 514-398-6702
- Email: mary.lanni@mcgill.ca
- Website: [www.mcgill.ca/architecture](http://www.mcgill.ca/architecture)

### Chemical Engineering

- Telephone: 514-398-4494
- Email: info.chemeng@mcgill.ca
- Website: [www.mcgill.ca/chemeng](http://www.mcgill.ca/chemeng)

### Civil Engineering and Applied Mechanics

- Telephone: 514-398-6345
- Email: undergrad.info.civil@mcgill.ca
- Website: [www.mcgill.ca/civil](http://www.mcgill.ca/civil)

### Electrical and Computer Engineering

- Telephone: 514-398-3943
- Email: undergrad.ece@mcgill.ca
- Website: [www.mcgill.ca/ece](http://www.mcgill.ca/ece)

### Mechanical Engineering

- Telephone: 514-398-8070
- Email: lisa.lapka@mcgill.ca
- Website: [www.mcgill.ca/mecheng](http://www.mcgill.ca/mecheng)
### Mining and Materials Engineering

#### Mining
- **Telephone:** 514-398-2215
- **Email:** admin.mining@mcgill.ca
- **Website:** www.mcgill.ca/minmat

#### Materials
- **Telephone:** 514-398-1040
- **Email:** coordinator.minmat@mcgill.ca
- **Website:** www.mcgill.ca/minmat

### Urban Planning
- **Telephone:** 514-398-4075
- **Email:** admissions.planning@mcgill.ca
- **Website:** www.mcgill.ca/urbanplanning

#### Contact Information for Departments, Schools and Programs for Students in the Faculty of Science (or the B.A. & Sc. Degree)

<table>
<thead>
<tr>
<th>Department</th>
<th>Telephone</th>
<th>Email</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anatomy and Cell Biology (Department of)</td>
<td>514-398-6335</td>
<td><a href="mailto:vittoria.catania@mcgill.ca">vittoria.catania@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/anatomy">www.mcgill.ca/anatomy</a></td>
</tr>
<tr>
<td>Atmospheric &amp; Oceanic Sciences (Department of)</td>
<td>514-398-3764</td>
<td><a href="mailto:undergraduateinfo@meteo.mcgill.ca">undergraduateinfo@meteo.mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/meteo">www.mcgill.ca/meteo</a></td>
</tr>
<tr>
<td>Biochemistry (Department of)</td>
<td>514-398-2423</td>
<td><a href="mailto:christine.laberge@mcgill.ca">christine.laberge@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/biochemistry">www.mcgill.ca/biochemistry</a></td>
</tr>
<tr>
<td>Biology (Department of)</td>
<td>514-398-4109</td>
<td><a href="mailto:nancy.nelson@mcgill.ca">nancy.nelson@mcgill.ca</a></td>
<td><a href="http://biology.mcgill.ca">http://biology.mcgill.ca</a></td>
</tr>
<tr>
<td>Program/Department</td>
<td>Telephone</td>
<td>Email</td>
<td>Website</td>
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</tr>
<tr>
<td>Biotechnology (program)</td>
<td>514-398-3998</td>
<td><a href="mailto:dalia.sannmartin@mcgill.ca">dalia.sannmartin@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/sheldon">www.mcgill.ca/sheldon</a></td>
</tr>
<tr>
<td>Chemistry (Department of)</td>
<td>514-398-6999</td>
<td><a href="mailto:advisor.chemistry@mcgill.ca">advisor.chemistry@mcgill.ca</a></td>
<td><a href="http://www.chemistry.mcgill.ca">www.chemistry.mcgill.ca</a></td>
</tr>
<tr>
<td>Cognitive Science (program)</td>
<td>514-398-7330</td>
<td><a href="mailto:ryan.bouma@mcgill.ca">ryan.bouma@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/cogsci">www.mcgill.ca/cogsci</a></td>
</tr>
<tr>
<td>Computer Science (School of)</td>
<td>514-398-7071 ext. 00739</td>
<td><a href="mailto:ugrad-sec@cs.mcgill.ca">ugrad-sec@cs.mcgill.ca</a></td>
<td><a href="http://www.cs.mcgill.ca">www.cs.mcgill.ca</a></td>
</tr>
<tr>
<td>Earth and Planetary Sciences (Department of)</td>
<td>514-398-6767</td>
<td><a href="mailto:kirsty.thornton@mcgill.ca">kirsty.thornton@mcgill.ca</a></td>
<td><a href="http://www.eps.mcgill.ca">www.eps.mcgill.ca</a></td>
</tr>
<tr>
<td>Earth Systems Science Interdepartmental (program)</td>
<td>514-398-3833</td>
<td><a href="mailto:jeffrey.mckenzie@mcgill.ca">jeffrey.mckenzie@mcgill.ca</a></td>
<td><a href="http://www.ess.mcgill.ca/index.php">www.ess.mcgill.ca/index.php</a></td>
</tr>
<tr>
<td>Environment (School of)</td>
<td>514-398-4306</td>
<td><a href="mailto:kathy.roulet@mcgill.ca">kathy.roulet@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/mse">www.mcgill.ca/mse</a></td>
</tr>
<tr>
<td>Geography (Department of)</td>
<td>514-398-4951 or 398-4111</td>
<td><a href="mailto:gakman@geog.mcgill.ca">gakman@geog.mcgill.ca</a></td>
<td><a href="http://www.geog.mcgill.ca">www.geog.mcgill.ca</a></td>
</tr>
</tbody>
</table>
Human Nutrition (program)

   Telephone: 514-398-7840
   Email: jocelyne.begin@mcgill.ca
   Website: www.mcgill.ca/dietetics

Interdepartmental Honours Immunology (program)

   Telephone: 514-934-1934 x45135 (Microbiology and Immunology) or 514-398-4342 (Physiology)
   Email: ciro.piccirillo@mcgill.ca (Microbiology and Immunology) or monroe.cohen@mcgill.ca (Physiology)
   Website: www.mcgill.ca/microimm/undergraduate/programs/interdepartmental

Kinesiology for Science Students (program)

   Telephone: 514-398-4184 ext. 0302
   Email: kin.physed@mcgill.ca
   Website: www.mcgill.ca/edu-kpe

Management (BCom program)

   Telephone: 514-398-4068
   Email: bcom.mgmt@mcgill.ca
   Website: www.mcgill.ca/desautels/bcom

Mathematics & Statistics (Department of)

   Telephone: 514-398-3800
   Email: ugrad.mathstat@mcgill.ca
   Website: www.math.mcgill.ca

Microbiology & Immunology (Department of)

   Telephone: 514-398-3915
   Email: office.microimm@mcgill.ca
   Website: www.mcgill.ca/microimm

Music (program)

   Telephone: 514-398-4535
   Email: bruce.minorgan@mcgill.ca
   Website: www.mcgill.ca/music

Neuroscience (program)

   Telephone: 514-398-7330
   Email: ryan.bouma@mcgill.ca
   Website: www.mcgill.ca/neuroscience
<table>
<thead>
<tr>
<th>Department/Program</th>
<th>Telephone</th>
<th>Email</th>
<th>Website</th>
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<tr>
<td>Pathology (Department of)</td>
<td>514-398-7192</td>
<td><a href="mailto:mira.hoffman@mcgill.ca">mira.hoffman@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/pathology">www.mcgill.ca/pathology</a></td>
</tr>
<tr>
<td>Pharmacology (program)</td>
<td>514-398-3623</td>
<td><a href="mailto:chantal.grignon@mcgill.ca">chantal.grignon@mcgill.ca</a></td>
<td><a href="http://www.medicine.mcgill.ca/pharma">www.medicine.mcgill.ca/pharma</a></td>
</tr>
<tr>
<td>Physics (Department of)</td>
<td>514-398-6477</td>
<td><a href="mailto:chairsec.physics@mcgill.ca">chairsec.physics@mcgill.ca</a></td>
<td><a href="http://www.physics.mcgill.ca">www.physics.mcgill.ca</a></td>
</tr>
<tr>
<td>Physiology (Department of)</td>
<td>514-398-4316</td>
<td><a href="mailto:sonia.viselli@mcgill.ca">sonia.viselli@mcgill.ca</a></td>
<td><a href="http://www.medicine.mcgill.ca/physio">www.medicine.mcgill.ca/physio</a></td>
</tr>
<tr>
<td>Psychology (Department of)</td>
<td>514-398-6100</td>
<td><a href="mailto:info@psych.mcgill.ca">info@psych.mcgill.ca</a></td>
<td><a href="http://www.psych.mcgill.ca">www.psych.mcgill.ca</a></td>
</tr>
<tr>
<td>Redpath Museum</td>
<td>514-398-4086 ext. 3188</td>
<td><a href="mailto:marie.laricca@mcgill.ca">marie.laricca@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/redpath">www.mcgill.ca/redpath</a></td>
</tr>
<tr>
<td>Science for Teachers</td>
<td>514-398-3202</td>
<td><a href="mailto:peter.barry@mcgill.ca">peter.barry@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/scienceforteachers">www.mcgill.ca/scienceforteachers</a></td>
</tr>
<tr>
<td>Technological Entrepreneurism for Students (program)</td>
<td>514-398-4068</td>
<td><a href="mailto:bcom.mgmt@mcgill.ca">bcom.mgmt@mcgill.ca</a></td>
<td><a href="http://www.mcgill.ca/desautels">www.mcgill.ca/desautels</a></td>
</tr>
</tbody>
</table>
1.12.11 Your Academic Career at McGill

1.12.11.1 University-Wide Regulations

This publication contains the regulations about your undergraduate academic career at McGill. It includes regulations concerning when to register, when you need to complete and the number of credits you need to complete for each course.

1.12.11.2 Faculty-Specific Regulations

McGill has 11 faculties, and every student belongs to one of them. When you are admitted to McGill, your offer letter indicates the faculty, degree and the number of credits you need to complete for your degree.

You should consult the appropriate faculty section in this publication for information pertinent to your degree and program, and for faculty-specific regulations. For some degrees, such as the Bachelor of Arts and Science (B.A. & Sc.), you belong to two faculties and will need to consult the section on the Bachelor of Arts and Science, as well as the sections on each faculty.

1.12.11.3 Your Academic Program

You are registered in a degree, but for many degrees there are associated programs (a major, minor, major concentration, etc.). For some degrees, such as Bachelor of Engineering, you will typically follow one program (such as Computer Engineering). For others, such as Bachelor of Arts, you will typically follow more than one program (such as a major concentration in English, with a minor concentration in History).

A typical undergraduate degree at McGill is 120-140 credits (four years of full-time study).

- Quebec CEGEP students typically receive 30 credits of advanced standing, so they will usually only have a further 90-110 credits (three years of full-time study) to complete. This varies by faculty, so consult your faculty section. In your first year, you will be placed in U1 (undergraduate year 1).
- Most other students typically have 120-140 credits to complete. This varies by faculty, so consult your faculty section. In your first year, you will be placed in U0 (undergraduate year 0), which is often referred to in this publication and elsewhere as your freshman year.
- Many students at McGill come with other forms of advanced standing (International Baccalaureate, French Baccalaureate, advanced placement exams, or students admitted from other universities as transfer students). If this is your case, you will receive information during the admissions process.

You will find program requirements in your faculty section or in departmental sections within a faculty. In some cases, you may pursue one of your programs in a department outside your faculty. For example, if you are enrolled in a Bachelor of Commerce, but are pursuing a minor concentration in Italian Civilization, you would consult the Desautels Faculty of Management section for the B.Com. requirements, and the Italian Studies department section, under the Faculty of Arts, for the Italian Civilization program requirements.

1.12.11.4 Important things to know about your academic program:

- The number of credits needed to complete your degree. Typically, three credits correspond to a one-term course, but there are many variations.
- Required courses: Courses that you must complete to fulfill the requirements of a major, minor, etc., unless you receive exemptions. You have no choice among required courses.
- Complementary courses: Alternative courses that you can take to fulfill the requirements of a major, minor, etc. You choose a specified number of these courses.
- Elective courses: Courses that do not count toward the fulfillment of the requirements of your major, minor, etc. Students often select these courses from outside their program of study. Some restrictions may apply, but you have the most choice in selecting elective courses. Some faculties also permit you to take elective courses using the Satisfactory/Unsatisfactory option (see section 1.4.7: Courses Taken under the Satisfactory/Unsatisfactory (S/U Option)). You should consult your faculty section concerning elective courses.
- Often, your department will also provide you with a recommended list of courses (or streams), so that you know the typical term-by-term course pattern.

For more assistance in understanding program requirements, and for a list of advisers on both downtown and Macdonald campuses, see section 1.12: Undergraduate Advising.

1.13 Service Point

Service Point has brought together newly-integrated, front-line Undergraduate and Graduate student administrative services. Located on the ground floor of the McLennan Library Building in the heart of the downtown campus, Service Point will address a wide variety of students’ needs.

Among the many services offered at Service Point for Undergraduate & Graduate students:

- certified or translated copies of diplomas
- degree verification
- help with admissions
- help with Minerva
- international health insurance cards & exemptions
- McGill ID cards
- official transcript pick-up
- replacement diplomas
- student exchanges/study abroad
- submitting legal documents
- tuition & fees info
- pick-up of alternative US Loans

Arts or Science students will also be able to inquire about:

- course & program registration
- exams (including deferred and supplemental)

For a complete list of student services and resources at McGill, see [www.mcgill.ca/students](http://www.mcgill.ca/students).

For more information about Service Point, see [www.mcgill.ca/students/servicepoint](http://www.mcgill.ca/students/servicepoint).

**Service Point Location**

3415 McTavish Street (corner Sherbrooke)
Montreal, QC
H3A 1Y1

Opening hours:
Monday to Friday, 9:30 a.m. - 5:00 p.m.
Telephone: 514-398-7878

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**1.14 Support for Students: Office of the Dean of Students**

The Dean and the Associate Dean of Students coordinate and promote initiatives concerned with important aspects of the student experience, such as advising, academic integrity, student discipline, student recognition programs, and outreach to families, the McGill community and the broader local community.

William and Mary Brown Student Services Building
3600 McTavish Street, Suite 4100
Montreal, QC H3A 1Y2

For information, contact (Dean/Associate Dean):

Telephone: 514-398-4990
Email: deanofstudents@mcgill.ca
Website: [www.mcgill.ca/deanofstudents](http://www.mcgill.ca/deanofstudents)

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**1.15 Student Services**

McGill offers a full range of student services and resources that support your life, learning, personal and academic achievements.

**1.15.1 Office of the Executive Director, Services for Students**

William and Mary Brown Student Services Building
3600 McTavish Street, Suite 4100
Montreal, QC H3A 1Y2

For information, contact:

Telephone: 514-398-3825
Website: [www.mcgill.ca/studentservices](http://www.mcgill.ca/studentservices)
The Executive Director, Services for Students (EDSS), coordinates all student services at McGill to help promote student success and well-being. The EDSS is available to provide assistance and/or information on almost all aspects of non-academic student life. Concerns of an academic nature are directed to the proper individual, office or department. Funding is also available for projects, initiated by students and/or staff, that enhance student life and learning.

1.15.2 Student Services – Downtown Campus

Unless otherwise indicated, all Student Services on the Downtown Campus are located in the William and Mary Brown Student Services Building, 3600 McTavish Street, Montreal, Quebec, H3A 1Y2.

A list of services available is given below. For further information, see the Student Services website: www.mcgill.ca/studentservices.

Student Services:

Brown Student Services Building, suite 4100
3600 McTavish Street
Montreal, Quebec, H3A 1Y2
General Information: 514-398-8238
Website: www.mcgill.ca/studentservices

Career Planning Service (CaPS): Provides career education, guidance, and individual advising to help you in your search for permanent, part-time, or summer jobs and internships.

Brown Student Services Building, Suite 2200
Telephone: 514-398-3304
Email: careers.caps@mcgill.ca
Website: www.mcgill.ca/caps

Chaplaincy Service: Concerned with the spiritual and mental well-being of all students.

Brown Student Services Building, Suite 4400
Telephone: 514-398-4104
Email: chaplaincy@mcgill.ca
Website: www.mcgill.ca/chaplaincy

Counselling Service: Assists with psychological, emotional, and interpersonal issues as well as vocational and academic concerns.

Brown Student Services Building, Suite 4200
Telephone: 514-398-3601
Email: counselling.service@mcgill.ca
Website: www.mcgill.ca/counselling

First Peoples’ House: Fosters a sense of community for Aboriginal students studying at McGill.

3505 Peel Street
Telephone: 514-398-3217
Email: firstpeopleshouse@mcgill.ca
Website: www.mcgill.ca/fph

First-Year Office: Helps ease the transition of all students new to McGill. Coordinates "Discover McGill," a one-day, campus-wide University and faculty orientation.

Brown Student Services Building, Suite 2100
Telephone: 514-398-6913
Email: firstyear@mcgill.ca
Website: www.mcgill.ca/firstyear

Health Services and Dental Clinic: Provides access to experienced physicians, nurses and health educators who offer health services and information in a confidential atmosphere. Also operates a laboratory offering a wide array of testing, and a dental clinic.

Brown Student Services Building, Suite 3300
Telephone: 514-398-6017
Website: www.mcgill.ca/studenthealth

International Student Services: Offers support to international students on non-academic matters (immigration, health insurance, etc.), runs a Buddy Program and an orientation program.

Brown Student Services Building, Suite 3215
Mental Health Service: A psychiatric clinic that offers easily accessible treatment for mental health problems.

Brown Student Services Building, Suite 5500
Telephone: 514-398-6019
Website: www.mcgill.ca/mentalhealth

Scholarships and Student (Financial) Aid Office: Provides assistance in the form of loans, bursaries, and Work Study programs to students requiring financial aid.

Brown Student Services Building, Suite 3200
General Information: 514-398-6013/6014
Telephone: 514-398-4807 (Scholarships)
Email: student.aid@mcgill.ca
Website: www.mcgill.ca/studentaid

Office for Students with Disabilities: Coordinates services to meet the needs of students with disabilities.

Brown Student Services Building, Suite 3100
Telephone: 514-398-6009
TDD: 514-398-8198
Email: disabilities.students@mcgill.ca
Website: www.mcgill.ca/osd

Tutorial Service: Sponsors an extensive tutorial program for students.

Brown Student Services Building, Suite 4200
Telephone: 514-398-6011
Email: tutoring.service@mcgill.ca
Website: www.mcgill.ca/tutoring

1.15.3 Student Services – Macdonald Campus

Student Services at the Macdonald Campus offers a range of non-academic services. All Student Services, whether at the Macdonald or Downtown campus, fall under the direction of the Office of the Executive Director, Services for Students. For detailed information, please visit our website at www.mcgill.ca/macdonald-studentservices, and the main Student Services website: www.mcgill.ca/studentservices.

Macdonald Campus Student Services Office
Centennial Centre, Room CC1-124
21,111 Lakeshore Road
Telephone: 514-398-7992
Fax: 514-398-7610
Email: stuserv.macdonald@mcgill.ca

Career Planning Service (CaPS): Assists you in your career development and search for permanent, part-time, and summer jobs by providing workshops, individual advising, a comprehensive job posting service, Career Fairs and a Career Resource Centre.

Telephone: 514-398-7582
Website: www.mcgill.ca/caps
Email: caps.macdonald@mcgill.ca

Counselling Service: Offers confidential counselling for personal, social, emotional, vocational and academic issues, among others. Appointments are required.

Telephone: 514-398-7992

Health Service: Offers health services in a confidential environment for a variety of health-related issues including general checkups, STI testing as well as routine and travel vaccinations. Appointments are available with our Nurse and Doctor.

Telephone: 514-398-7992

Off-Campus Housing: Maintains online listings of available off-campus student housing. McGill ID and Minerva PIN required to access the listings.
Student (Financial) Aid Office: Information and assistance is available for all students concerning government aid programs (includes all Canadian provinces), McGill Loans and Bursaries, and the Work Study Program. A Loan Administrator visits the centre every Wednesday to help students with specific financial concerns.

Chaplaincy Service: Offers two support programs: The Winter Coat Project provides students with slightly used winter jackets and accessories. The McGill Student Parents’ Network (MSPN) provides support for students with children, to help them succeed in their studies. The Centennial Centre also provides international students with their mandatory Blue Cross Health Insurance cards, and coordinates midterm examinations for students registered with the Office for Students with Disabilities.

1.15.4 Ombudsperson for Students

The Office of the Ombudsperson for students offers confidential, informal, independent, and neutral dispute resolution services to all members of the student community by providing information, advice, intervention and referrals.

The mandate of the Ombudsperson at McGill University is to intervene at the beginning of the complaint process, and to attempt to resolve issues informally before they proceed to more formal processes. To learn more about the role and scope of the Ombudsperson for Students, visit the University Secretariat website at: www.mcgill.ca/secretariat/policies/students to consult the mandate of the Office of the Ombudsperson for Students.

Office of the Ombudsperson
3610 McTavish (above Dr. Penfield)
Main Floor, Suite 14
Telephone: 514-398-7059 (for an appointment)
Website: www.mcgill.ca/ombudsperson

1.15.5 Extra-Curricular Activities

Revision, August 2011. Start of revision.

There are over 250 activities, clubs and services that students may join. These include international clubs; religious groups; political clubs; communications groups such as Radio McGill (CKUT), the McGill Tribune, and the McGill Daily; and some 50 miscellaneous groups (e.g., science clubs; literary, theatrical and musical societies; a chess club; and the McGill Outdoors Club).

Revision, August 2011. End of revision.

The University Centre, 3480 McTavish Street, provides club rooms for these activities in a four-storey building with cafeterias, a ballroom, lounges and an experimental theatre. Activities for graduate students are centred in David Thomson House at 3650 McTavish Street. On the Macdonald Campus, facilities are located in the Centennial Centre. Refer to Faculty of Agricultural and Environmental Sciences in this publication.

1.15.6 Bookstore

The McGill University Bookstore stocks new and used textbooks, a full range of books for the academic and professional community, stationery supplies, and McGill insignia clothing and gift items. Visit the Bookstore website or in person to sign up for email reminders so you are the first to know about services such as used textbook buy-back and other events.

3420 McTavish Street
Telephone: 514-398-7444
Website: www.mcgill.ca/bookstore

Macdonald Bookstore
Centennial Centre
Telephone: 514-398-8300
Website: www.macstudents.ca/index.php?pg=bookstore

1.15.7 Computer Store

The McGill Computer Store, located on the second floor of the University Bookstore, sells a full range of computer hardware, software, peripherals and consumer electronics at educational prices.

3420 McTavish Street
Telephone: 514-398-5025
Email: sales.mcs@mcgill.ca
1.15.8 Day Care

The McGill Childcare Centre is an independently run centre that can accommodate 106 children, ranging in age from four months to four years. Early application is required as placement is limited, especially for certain age groups.

The Centre is located at:

3491 Peel Street
Montreal, Quebec H3A 1W7
Telephone: 514-398-6943
Website: www.mcgill.ca/daycare

A Campus Day Care Centre, located adjacent to the Macdonald Campus, is an independently run centre that can accommodate approximately 60 children, ranging in age from four months to five years. Preference is given to the Macdonald Campus community. Early application is recommended.

The Centre is located at:

1 Maple Avenue
Ste.-Anne-de-Bellevue, Quebec H9X 2E3
Telephone: 514-398-7951

1.16 Residential Facilities

McGill Residences offers you a variety of accommodations that reflect the diversity of our student population on both the downtown and Macdonald campuses.

Mission statement

To continuously develop a safe home and nurturing community for our students through the following means:

• Keeping the value of Respect for ourselves, others, and the physical environment as our cornerstone
• Making environmentally and economically sustainable choices
• Being responsive to student needs and supporting student initiatives
• Maintaining open lines of communication and collaborative decision-making
• Working together to provide a comfortable, clean and secure environment
• Keeping current with developing technology, practices, and professional development
• Maintaining integrity and accountability
• Thinking critically about what we do and having the courage to change
• Honouring our rich history and strong residence tradition

1.16.1 University Residences – Downtown

McGill Residences house approximately 2,700 undergraduate students in dormitories, apartments, and shared-facilities houses. McGill's dormitories are primarily for first-year students and feature full meal service. McGill's apartment-style residences and shared-facilities houses are mainly for first-year students who desire a more independent residence lifestyle.

Trained upper-year student leaders (Floor Fellows) and Academic Staff (Directors) live in all McGill Residences and provide support for the residents. An elected Residence Council serves as the voice of students.

All residence rooms have telephone and high-speed network-access services which are available at extra cost. All McGill Residences are connected to the McGill Wireless Network.

Residence Admissions Office
3473 University Street, room 150
Montreal, QC H3A 2A8
Telephone: 514-398-6368
Fax: 514-398-2305
Email: housing.residences@mcgill.ca
Website: www.mcgill.ca/residences

1.16.1.1 Dormitory-style Residences

McGill has nine dormitory residences:
• The four co-ed Bishop Mountain Residences (Gardner, McConnell, Molson and Douglas Halls) are located on the slope of Mount Royal and overlook the campus.
• Royal Victoria College (RVC), which has one all-female and one co-ed wing, is located one block from the McGill gates.
• The co-ed New Residence Hall is located five short blocks from the campus.
• University Hall and Prez Rez are co-ed dorms located directly across from the Milton Gates to campus.
• The newest residence, Carrefour Sherbrooke, is a co-ed hall located two blocks from campus.

Dormitory residents have compulsory meal plans and have access to multiple cafeterias.

Rooms at the Bishop Mountain Residences, University Hall, Prez Rez and RVC are mostly single occupancy. Carrefour Sherbrooke and the New Residence Hall have mostly double rooms. Each student gets a bed, desk, desk lamp, chair, dresser, closet and small fridge (one fridge per double room).

In all halls, residents are responsible for the cleanliness of their rooms. Common bathrooms and showers are located on each floor, except in Carrefour Sherbrooke and the New Residence Hall, where there are private bathrooms within each room. Each Hall has a laundry room, including card-operated washers and dryers, and ironing facilities. All Halls have a TV and recreation room, pay telephones, and a small storage area for suitcases, ski equipment, etc.

1.16.1.2 Apartment-style Residences

Solin Hall is a modern, award-winning apartment-style residence that has two, three and four-bedroom apartments. Located four Metro stops west of the main campus, Solin features large common areas (TV and game rooms) as well as a computer lab, and houses mostly first-year students. Each apartment has a living room, dining room, kitchen and bathroom(s), with basic furniture such as stove, fridge, table, chairs, sofa, lamps and drapes. Bedrooms have a bed, desk, chair and dresser. All apartments and public area floors are carpeted. Shopping areas are within short walking distance. Limited indoor parking is available.

The Greenbriar Apartments residence is located one block from the campus. It houses mostly first-year undergraduate students in self-contained studio and double-occupancy, one-bedroom apartments. Apartment kitchens have a stove, fridge and sink, and bedrooms have a bed, desk, table, chairs, dresser and blinds.

Although these residences do not offer full meal plans (Solin Hall residents have a small meal plan included with their lease, from which they can opt-out), residents may purchase one from Food and Dining Services for use at the residence cafeterias or elsewhere on campus. For more information, see www.mcgill.ca/foodservices/mealplans20112012.

1.16.1.3 Shared-facilities Houses

McGill Residences maintains a number of beautifully renovated older buildings, each housing between 15 and 30 first-year students. These shared-facilities houses are located a few blocks from the campus and have both single and double occupancy bedrooms with large shared kitchens, bathrooms and common areas. Each bedroom has a desk, chair, bed (some are loft beds), dresser, closet and blinds. Common areas are also fully furnished.

Although these residences do not include meal plans, residents may purchase one from Food and Dining Services for use at the residence cafeterias or elsewhere on campus. For more information, see www.mcgill.ca/foodservices/mealplans20112012.

1.16.1.4 Residence Fees

Residence fees for the 2011-2012 session had not been set at the time this publication was finalized. Fees for the 2010-2011 session were as follows:

Rates for Gardner, McConnell, Molson, Douglas, and University Halls and Prez Rez ranged from $6,218 to $6,782 for a single room and $5,836 to $6,782 for a double room. The rates at Royal Victoria College ranged from $7,206 to $7,568 for single rooms and $6,660 to $7,120 for a double room. These rates do not include the cost of a mandatory meal plan. In 2010-11, the meal plan rate ranged from $4,950-$5,550. These rates are for the regular session: September 1 to April 30.

At the New Residence Hall and Carrefour Sherbrooke, room rates were $7,124 to $7,600 per person for double rooms and $8,000 for a single room. These rates do not include the cost of a mandatory meal plan. In 2010-11, the meal plan rate ranged from $4,950-$5,550. These rates are for the regular session: September 1 to April 30.

The rooms in Solin Hall and the Greenbriar Apartments are leased on an 11-month basis: September 1 to July 31. The room rates were $7,854 to $8,987 for a single room and $6,050 to $6,699 for a double room in a multi-bedroom apartment at Solin Hall. Residents of Solin Hall were also assessed a $300 meal plan, from which they had the choice of opting out. Single-occupancy studio apartments at Greenbriar were $10,010 and double-occupancy one-bedroom apartments were $6,072 to $6,699 for a double room in a multi-bedroom apartment at Solin Hall. Residents of Solin Hall were also assessed a $300 meal

Shared facilities houses are also leased on an 11-month basis: September 1 to July 31. Room rates ranged from $8,129 to $9,548 for a single room, depending on the dimensions of the room. The rate for a double room was $6,798. Rates did not include a meal plan.

1.16.1.5 Meal Plans

All dormitory residents have compulsory meal plans that can be used seven days a week. Residents at Molson, McConnell and Gardner Halls dine in the large, centrally-located Bishop Mountain Hall. Carrefour Sherbrooke, New Residence Hall, Douglas Hall and RVC have their own dining areas. Residents of University Hall and Prez Rez are welcome to use their meal plan at the residence cafeterias. All of the Halls have kitchenettes, where residents can prepare snacks or meals at any time.

Leases for Solin Hall include a $300 meal plan, from which you can opt out. Leases for the Greenbriar Apartments and the shared-facilities houses do not include meal plans. The apartments and houses have fully-equipped kitchens where students can prepare their own meals. However, residents are welcome to purchase a meal plan from Food and Dining Services for use at the residence cafeterias or elsewhere on campus. For more information, see www.mcgill.ca/foodservices/mealplans20112012.
1.16.1.6 Student Government

Each Hall has a Residence Council, elected at the start of the academic year. It is the job of the council to gather Hall opinions, supervise financial affairs, and organize recreational and social activities within the residences. McGill’s residences are run for the convenience and advantage of the students living in them. Residence Councils play a significant role in deciding and administering their community standards.

*Note:* Residence fees include an activity fee of $24 collected by the University on behalf of the Residence Council of each Hall and the Inter-Residence Council. These funds comprise each Council’s budget with which to plan activities for the Hall and across residences.

1.16.2 University Residences – Macdonald Campus

**Campus Housing Office**

P.O. Box 188

Macdonald Campus of McGill University

Sainte-Anne-de-Bellevue, QC H9X 3V9

Telephone: 514-398-7716

Fax: 514-398-7953

Email: residences.macdonald@mcgill.ca

Website: www.mcgill.ca/macdonald-residences

Residence life is an integral part of Macdonald Campus activities. Laird Hall, with a capacity of 250 students, is a co-ed residence that provides accommodation for undergraduate, graduate, and Farm Management Technology students. Residents enjoy comfortable rooms, modern kitchens, cozy lounge facilities, and other amenities that help make their residence life a complete and meaningful part of their university experience. All dorm rooms have telephone and high-speed network access services, which are available at extra cost.

The EcoResidence, accommodates 100 students. This residence will appeal to students who enjoy independent living in self-contained fully furnished apartments of two or six single-bedroom units. Units are split-level with large, airy, common living areas.

1.16.2.1 Residence Fees – Macdonald Campus

Residence fees are paid separately from tuition, in accordance with regulations of the Fee Payment Option selected at the time of signing a Residence Lease. The residence fees for the 2011-2012 session had not been set at the time this publication was finalized. The 2010-2011 session rates for Laird Hall were: $2,720 (double occupancy) and $3,000 (single occupancy). Rates for the EcoResidence varied from $430 to $440 per month. An updated fee sheet will be available on the Macdonald residence website at: www.mcgill.ca/students/housing/macdonald/.

There is no meal plan offered on the Macdonald Campus. Students may purchase a Commuter meal plan. Refer to www.mcgill.ca/foodservices/mealplans20112012 for additional information. Meals are also available on a cash basis from the Link Café, located on the ground floor between the Macdonald-Stewart Building and Barton Library. The Link Café is open for breakfast and lunch during weekdays only. For budgeting purposes, the cost of meals per session is approximately $3,200.

1.16.2.2 Residence Occupancy – Macdonald Campus

The residence fees cover the period from August 28, 2011 to May 1, 2012. You must vacate your room at the end of the lease term. Only under exceptional circumstances will you be granted permission to arrive prior to the beginning date of the lease or remain in residence during the summer months. In these cases, you must apply to the Campus Housing Office; an additional fee will be charged if permission is granted.

You can request permission to extend your stay in residence (at the normal weekly charge) if you are taking extended courses after the regular session, employed on campus, or registered for summer courses.

In exceptional circumstances, international students or students coming from a distance may be admitted early. Permission from the Campus Housing Office must be obtained prior to arrival. Student Monitors may be admitted before the opening date of courses, if permission is granted by the Campus Housing Office.

1.16.2.3 Facilities for Non-Resident Students – Macdonald Campus

The Centennial Centre features common rooms for studying. Lockers are available in the Macdonald-Stewart Building. You can rent them at the Students’ Society counter in Centennial Centre. The Link Café is located on the ground floor between the Macdonald-Stewart Building and Barton Library and is open Monday through Thursday 8:00 a.m. to 8:00 p.m. and Friday 8:00 a.m. to 2:30 p.m. The Link Café is not open Saturdays, Sundays, or holidays designated by the University.

*Note:* Non-resident students cannot stay overnight in any residence without permission from the Campus Housing Office.

1.16.2.4 Student Parking – Macdonald Campus

Parking permits are available from Macdonald Campus Security, Room 101 Laird Hall. A parking decal is $165 for one year and $99 for one semester and can be picked up Monday to Friday from 8:15 a.m. to 3:40 p.m.
Daily passes for students are $3 and can be purchased from the parking meter located in the Upper East Gravel lot. The meter is coin-operated and exact change is required. All students obtaining a daily pass must park in the Horticulture lot, east of the Highway 20 overpass. If you are not sure of the location, you can pick up a map from the Campus Security office in Laird Hall. For more information, see www.mcgill.ca/transport/parking/mac.

1.17 Athletics & Recreation

1.17.1 Downtown Campus

1.17.1.1 Department of Athletics & Recreation

Offers a wide range of facilities, activities, and equipment. Facilities include a gymnasium, fully-equipped fitness centre, varsity weight room, pool, arena, Fieldhouse, stadium, indoor & outdoor running tracks and tennis courts, squash & racquetball courts, spinning, dance & martial arts studios, and various playing fields.

McGill students can participate in instructional, recreational, intramural and intercollegiate activities, as well as sports clubs. There are nominal fees for instructional courses and membership to the Fitness Centre.

McGill Sports Complex
475 Pine Avenue West
Telephone: 514-398-7000
Email: perry.karnofsky@mcgill.ca (recreational sports) or lisen.moore@mcgill.ca (intercollegiate sports)
Website: www.mcgill.ca/athletics
Mobile Website: m.athletics.mcgill.ca
Facebook: www.facebook.com/mcgillathleticsandrecreation
Twitter: www.twitter.com/McGillAthletics

1.17.2 Macdonald Campus

1.17.2.1 Athletics & Recreation

Offers a wide range of facilities, activities, and equipment, free of charge. Facilities include a gymnasium, weight room (with fitness trainers on hand four evenings per week), arena, tennis courts, playing fields and large expanses of green space. Students can participate in instructional, recreational, intramural and intercollegiate activities. There are nominal fees for instructional courses.

Athletics offices are located in the Stewart Athletic Complex, just west of the Centennial Centre.

Stewart Athletic Complex
Telephone: 514-398-7789
Website: www.macdonaldcampusathletics.mcgill.ca

1.18 For your Information Technology (IT) needs

McGill's IT Services website is your one-stop shop for all central IT services at McGill. Visit www.mcgill.ca/it to:

- Find details on all IT services, including available training and support. Services are organized by categories such as "Telephone, Network and Wireless".
- Search the McGill IT Knowledge Base for FAQs and supporting articles on all IT services. Search by keywords such as "myMcGill", or by specific article number.
- Send us your feedback or get help on an IT issue.
- Read featured articles on computer security, new software and other timely tips.
- Find out about new IT projects on the horizon.
- Check the status of IT systems at a glance and view IT announcements and scheduled downtimes.

Take an interactive video tour of IT services at http://knowledgebase.mcgill.ca/it/welcome-students. Here you’ll learn about myMcGill, the University portal, and myCourses (for online course content). You’ll also find information on accessing your McGill email, connecting to the McGill wireless network, taking computer clinics, and downloading free software available to students.

1.18.1 Logging In

You need to use your McGill Username (usually in the form of firstname.lastname@mail.mcgill.ca) and McGill Password to access most central IT services including: myMcGill, myCourses, email, wireless and Virtual Private Network (VPN).
To find out your McGill Username and set your McGill Password:

2. Go to Personal Menu > Password for McGill Username
3. Follow the onscreen instructions.

1.18.2 *myMcGill (the University portal)*

*myMcGill* is the central access point where you:

- Read your email.
- Check *myCourses*.
- Get direct links to Minerva to view and update your student records and account information.
- Search the McGill Library Catalogue.
- Keep abreast of the latest McGill news.

Click *myMcGill* at the top of the McGill home page (www.mcgill.ca) or through the McGill Quick Links, and sign in using your McGill Username and McGill Password.

1.18.2.1 *Browser compatibility*

*myMcGill* currently supports the latest versions of the following browsers:

- Internet Explorer (IE) (Windows)
- Firefox (Mozilla) (Windows/Macintosh)

1.18.3 *myCourses*

Many of your courses will have online materials or activities such as assignments and readings, syllabuses, project guidelines, discussion forums, calendars, etc.

Access your online course content via *myCourses* at www.mcgill.ca/mycourses or through links within *myMcGill*.

- Sign in using your McGill Username and McGill Password.
- Click *myCourses* (WebCT Vista) to enter the site.
- Verify your browser settings using the Check Browser utility at the top-right corner of the page.

Find more information on *myCourses* for students at: www.mcgill.ca/it.

1.18.4 *Email*

Your McGill Email Address (usually in the form of firstname.lastname@mail.mcgill.ca) is the University's official means of email communication with you. For information on the policy, see *E-mail Communications with Students* at www.mcgill.ca/secretariat/policies/informationtechnology. Access your email at http://exchange.mcgill.ca or through the *myMcGill* portal using your McGill Username and McGill Password. View your McGill Username, McGill Email Address and set up your McGill Password on the Minerva Personal Menu.

1.18.5 *Online Student Directory*

You can opt in to the student directory and make it easier for your fellow classmates to contact you. Find more on this service at www.mcgill.ca/directory/students.

1.18.6 *Getting Connected*

You will need to use your McGill Username and McGill Password to access the services listed below. You can find more details on these services at www.mcgill.ca/it:

**Wireless**: Access the Internet using your laptop or other mobile device from virtually anywhere on campus, through the McGill Wireless network. Log in to the Wireless network using your McGill Username and McGill Password.

**Virtual Private Network (VPN)**: If you connect to the Internet with an Internet Service Provider (ISP), you need to establish a VPN connection to access McGill restricted sites and resources (e.g., Library databases). Connect by VPN using your McGill Username and McGill Password. For instructions on setting up a VPN connection, search the IT Knowledge Base at www.mcgill.ca/it.
McGill Residences Telecommunications: For students living in McGill Residences and McGill Off-Campus Residences, there is REZ Voice and Data service (wired and wireless). For more information search the IT Knowledge Base at www.mcgill.ca/it.

Computer Labs: Many faculties and departments offer their students computer labs. For lab locations, computer availability and software/peripheral availability, see http://webforms.mcgill.ca/labs.

Connectivity@McGill iCare Clinic: Attend this free, hands-on clinic and learn how to configure your computer to connect to the Internet via wireless or modem, and how to set up a VPN connection. Find out how to register for IT Training at www.mcgill.ca/it.

1.18.7 Safe Computing

Computing Safety iCare Clinic: Attend this free clinic and learn how to prevent viruses, spyware, adware and other malicious programs from infecting your computer. Find out how to register for IT Training at www.mcgill.ca/it.

Free software: Download free antivirus software and other campus software from McGill’s Software Licensing site at www.mcgill.ca/software. Find out more about campus software and protecting your computer at www.mcgill.ca/it.

Note: Be sure to uninstall any previous antivirus software from your computer before installing new antivirus software.

Tips for keeping information secure: Read about steps you can take to protect your data and identity at www.mcgill.ca/it/information-security.

1.18.8 Set up your security questions in myMcGill

Setting up your security questions and answers for your McGill Password allows you to use the Forgot Password? link found on several McGill applications, in case you forget it.

Once you have set up your McGill Password in Minerva, log in to myMcGill (https://my.mcgill.mcgill.ca) and click the link in the McGill Password Security portlet. Follow the onscreen instructions to set up your own security questions and responses.

1.18.9 Need Help?


McGill IT Knowledge Base: Search the IT Knowledge Base at http://knowledgebase.mcgill.ca/it for setup instructions and answers to commonly asked questions about IT.

1.18.9.1 Getting Help?

Contact the ICS Service Desk by submitting your request via a web form at www.mcgill.ca/it/get-started-it/need-help, or check phone and walk-in support hours at www.mcgill.ca/it.

1.19 The McGill Writing Centre

The McGill Writing Centre (MWC) offers credit courses in academic writing for both native and non-native speakers of English. In addition to its credit course offerings, the MWC offers workshops, seminars, and tutorials. For further information, please visit the MWC website: www.mcgill.ca/mwc.

Courses coded as CEAP (for native speakers of English) and CESL (for non-native speakers of English) may be taken to fulfill language requirements or as electives in some degree programs. In some faculties, you need to obtain approval from your Student Affairs Office as well as from your academic adviser before you take courses outside of your faculty, especially if the courses are part of your program requirements.

List of Undergraduate Courses: (please take note of course number changes)

<table>
<thead>
<tr>
<th>Previous Course Number</th>
<th>New Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAPR 250</td>
<td>CEAP 250</td>
<td>Research Essay and Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>ESLN 150</td>
<td>CESL 150</td>
<td>ESL: English as a Second Language</td>
<td>6</td>
</tr>
<tr>
<td>ESLN 200</td>
<td>CESL 200</td>
<td>ESL: Academic English 1</td>
<td>3</td>
</tr>
<tr>
<td>ESLN 299</td>
<td>CESL 299</td>
<td>ESL: Academic English Seminar</td>
<td>3</td>
</tr>
<tr>
<td>ESLN 300</td>
<td>CESL 300</td>
<td>ESL: Academic English 2</td>
<td>3</td>
</tr>
<tr>
<td>ESLN 400</td>
<td>CESL 400</td>
<td>ESL: Essay &amp; Critical Thinking</td>
<td>3</td>
</tr>
<tr>
<td>ESLN 500</td>
<td>CESL 500</td>
<td>ESL: Research Essay and Rhetoric</td>
<td>3</td>
</tr>
<tr>
<td>EDEC 206</td>
<td>CCOM 206*</td>
<td>Communication in Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

* CCOM 206 is a required course for and restricted to students in Engineering.
Note: Placement tests are required for admission to most CESL Undergraduate courses. Please consult the MWC website at www.mcgill.ca/mwc for details of the date and location of placement tests. In the case of CEAP 250, students write a brief composition IN CLASS on the first day of classes.

CEAP, CESL, and CCOM courses are not open to students who have taken them previously under the corresponding EAPR, ESLN, and EDEC codes.

List of Graduate Courses: (please take note of course number changes)

<table>
<thead>
<tr>
<th>Previous Course Number</th>
<th>New Course Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESLN 640</td>
<td>CESL 640</td>
<td>Fundamentals of Academic Writing</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>for Graduate Students</td>
<td></td>
</tr>
<tr>
<td>ESLN 650</td>
<td>CESL 650</td>
<td>Pronunciation &amp; Communication</td>
<td>3</td>
</tr>
<tr>
<td>ESLN 660</td>
<td>CESL 660</td>
<td>Pronunciation: Independent Study</td>
<td>N/A</td>
</tr>
<tr>
<td>ESLN 690</td>
<td>CESL 690</td>
<td>Writing for Graduate Students</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: CESL courses are not open to students who have taken them previously under the corresponding ESLN codes.

Courses for School of Continuing Studies Students

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCOM 205**</td>
<td>Communications in Management 1</td>
</tr>
<tr>
<td>CCOM 207***</td>
<td>Communications in Public Relations</td>
</tr>
</tbody>
</table>

** CCOM 205 is required for and restricted to students in Career and Professional Development programs offered by the School of Continuing Studies.

*** CCOM 207 is required for and restricted to students in the Public Relations Certificate program offered by Career and Professional Development in the School of Continuing Studies.

1.19.1 Contact Information for the McGill Writing Centre

Effective May 1, 2011

The McGill Writing Centre
McLennan-Redpath Library
Redpath Main, Room #02
3459 McTavish Street
Montreal, Quebec
H3A 1Y1

Telephone: 514-398-7109
Fax: 514-398-7416
Website: www.mcgill.ca/mwc
General Inquiries: mwc@mcgill.ca

Revision, August 2011. Start of revision.

Inquiries concerning CEAP 250, as well as CCOM courses, should be directed to:

Prof. Sue Laver, Director of the MWC
Email: sue.laver@mcgill.ca
McLennan-Redpath Library
MWC, Room #03
Telephone: 514-398-2351

Inquiries concerning CESL 200, CESL 299, CESL 300, CESL 400, CESL 640, CESL 650 and CESL 660 should be directed to:

Prof. Carolyn Samuel
Email: carolyn.samuel@mcgill.ca
McLennan-Redpath Library
MWC, Room #02F
Telephone: 514-398-1712

Inquiries concerning CESL 500 and CESL 690 should be directed to:
1.20 Resources for Study and Research: Libraries

The McGill Library consists of 12 branch libraries and 3 special collections located across both campuses. Numbering over six million items, the Library's vast holdings include 2.5 million books, textbooks and course-readers, thousands of journal titles, vast manuscript and pictorial collections and thousands of sound and video recordings. The Library's e-resources are extensive, and include over 60,000 e-journals, multimedia, and two million e-books on subjects ranging from early English literature to nutrition.

A comprehensive website (www.mcgill.ca/library), an online catalogue, and a wide range of library services link the Library's resources to those who need them for learning, research and scholarship. Hundreds of databases on topics from art history to zoology guide users to relevant journal articles and research materials, while subject guides on topics like chemistry and social work provide comprehensive and clear direction for users undertaking research. The Library's website also provides access to items such as past examination papers, McGill theses, and foreign newspapers. All electronic resources are available for use from home using the VPN (Virtual Private Network) or laboratories anywhere on the campus - access any time, any place.

The staff in each branch library can help you locate information for course work, assignments or research topics. Training is provided at all student levels to ensure you know how to find and use information. Information skills programs are undertaken as part of course curricula. Liaison Librarians specialize in specific disciplines, and are available to assist students and staff in person, on the phone, online, by email and via online chat.

Although opening hours vary, most libraries are open up to 90 hours per week, and several branch libraries extend opening hours during examination periods, including 24-hour-access to the Humanities and Social Sciences Library. Hundreds of computers are available for email, word-processing, accessing online courses, reading library materials, preparing assignments and searching the Internet. Designed to enhance the learning experiences of diverse users, the Library's facilities offer a variety of comfortable and attractive spaces, including quiet individual study areas, dynamic e-zones, and group study rooms that can be booked for use. Wireless access is available throughout the library, and all libraries have card-operated printing and copying facilities. Special facilities are available for vision- and hearing-impaired users. Laptops and e-readers are also available for loan.

You can use special library services such as the Electronic Data Resources Service, which supports empirical and statistical research. Unique scholarly materials from the Rare Books and Special Collections are being digitized and theses are being submitted electronically. The Course Reserve collection in each branch library includes copies of textbooks and high-demand items on course reading lists. You can borrow materials from any library and return them anywhere across the system. If you need material not owned by McGill University Library, our Interlibrary Loan & Document Delivery Service will source it for you and pickup is available at any branch.

1.21 Resources for Study and Research: University Archives

The McGill University Archives (MUA) acquires, preserves and makes available to researchers (including students) more than 5,000 metres of records dating from 1797 to the present. These records document McGill University faculty, research, alumni and student organizations, and certain Montreal-based organizations. Archived media include textual records, photographs, audio-tapes, film, video, plans, University publications, and artifacts.

The MUA acquires private records to support University research goals and manages the University's corporate memory and information assets through its records management program. This program regulates the flow of administrative records and protects vital evidence of University functions and activities according to Quebec archives and records legislation.

The MUA Reading Room is open Monday to Friday, from 9:00 a.m. to 12:30 p.m. and from 1:45 p.m. to 4:45 p.m.; however, appointments are recommended. The MUA website features virtual exhibitions, tools to search the MUA holdings, and a large bank of digitized images.

McGill University Archives
McLennan Library Building - 6th Floor, Room 17B
Telephone: 514-398-3772
Fax: 514-398-8456
Email: refdesk.archives@mcgill.ca
Website: www.archives.mcgill.ca

1.22 Resources for Study and Research: Redpath Museum

The Redpath Museum is an academic unit of McGill University. Its mission is to foster understanding and appreciation of the diversity of our biological, geological, and cultural heritage through scientific research, collections-based study, and education. Its collections have been growing for over a century,
and provide resources for research and for graduate and undergraduate education in biology, geology, anthropology and other fields. Its largest collections include fossils from the ancient sea floor of eastern Quebec, the oldest land plants, a vast range of minerals, molluscs from around the world, Egyptian and classical antiquities, and artifacts from Central Africa. The Museum also houses research laboratories and classrooms.

The Museum welcomes McGill students and staff to visit its permanent exhibit, which presents the history of life through the ages illustrated by material from Quebec and neighbouring regions, as well as displays that feature the mineral and mollusc collections. The Museum also features an ethnology gallery devoted to cultures throughout the world, including ancient Egypt, classical Greece and Rome, Asia, and Africa.

859 Sherbrooke Street West  
Telephone: 514-398-4086  
Email: redpath.museum@mcgill.ca  
Website: www.mcgill.ca/redpath

### 1.23 Resources for Study and Research: McCord Museum of Canadian History

The McCord Museum houses one of the finest historical collections in North America. It possesses some of Canada's most significant cultural treasures, including the most comprehensive collection of clothing - comprising over 16,000 garments or accessories - made or worn in Canada; an extensive collection of First Nations artifacts - the most important of its kind in Quebec with a corpus of over 13,000 objects from across Canada; and the renowned Notman Photographic Archives, which contain over one million historical photographs and offers a unique pictorial record of Canada from pre-Confederation to the present. The McCord also houses paintings by renowned artists such as Théophile Hamel, Cornelius Krieghoff, James Pattison Cockburn and George Heriot. The Museum's Textual Archives include some 185 linear metres of documents relating to Canadian history. Finally, the McCord's website (www.mccord-museum.qc.ca) features award-winning virtual exhibitions, innovative learning resources and a vast, searchable database of information on the Museum's collections.

Exhibitions at the McCord provide innovative interpretations of the social and cultural history of Montreal, Quebec and Canada. In addition to guided tours, school programs, cultural activities and lectures, the McCord offers a range of services including the Museum Café and boutique.

Researchers are welcome by appointment.

690 Sherbrooke Street West  
Telephone: 514-398-7100  
Email: info@mccord.mcgill.ca  
Website: www.mccord-museum.qc.ca

### 1.24 Resources for Study and Research: Lyman Entomological Museum and Research Laboratory

Located on the Macdonald Campus, this institution is the insect collection and systematic entomology laboratory of McGill University. The collection houses 2.8 million specimens of insects and other arthropods, making it the second largest insect collection in Canada, and the largest university insect collection in the country. The Lyman Museum is not generally open to the public since its main functions are research and teaching, not exhibitions. However, tours are available by appointment to interested parties.

Telephone: 514-398-7914  
Website: http://lyman.mcgill.ca

### 1.25 Resources for Study and Research: Other Historical Collections

In addition to the McGill museums, there are other collections and exhibits of a specialized nature, ordinarily open only to students. For access, contact the appropriate department. These include the Medical Museum.

The Medical Museum is a repository of material dating from the late 19th century that documents the study and practice of Medicine at McGill University and its associated teaching hospitals. The major part of the collection consists of pathologic specimens, including those in the Abbott and Osler collections. The material is housed in the Lyman Duff Medical Building. A showcase in the Pine Street entrance hallway displays temporary exhibits. For more information, see the Museum website www.mcgill.ca/medicalmuseum.

The McGill Physics Department has two specialized collections that may be viewed by appointment:

The Rutherford Museum contains original apparatus and other items used by Professor Ernest Rutherford in his Nobel Prize-winning research at McGill University on radioactivity (1898-1907). For more information, see www.physics.mcgill.ca/museum/rutherford_museum.htm.

The McPherson Collection comprises a wide range of historical apparatus and instruments used for measurements and investigations, with special emphasis on 19th-century physics. For more information, see www.physics.mcgill.ca/museum/macpherson_collection.htm.
1.26 The University

McGill University is one of Canada's best-known institutions of higher learning and one of the country's leading research-intensive universities. With students coming to McGill from about 150 countries, our student body is the most internationally diverse of any medical-doctoral university in Canada.

1.26.1 History

The Hon. James McGill, a leading merchant and prominent citizen of Montreal, who died in 1813, bequeathed an estate of 46 acres called Burnside Place together with £10,000 to the “Royal Institution for the Advancement of Learning” upon condition that the latter erect “upon the said tract or parcel of land, an University or College, for the purpose of education and the advancement of learning in this Province”; and further upon condition that “one of the Colleges to be comprised in the said University shall be named and perpetually be known and distinguished by the appellation of ‘McGill College’.”

At the time of James McGill's death, the Royal Institution, although authorized by law in 1801, had not been created, but was duly instituted in 1819. In 1821 it obtained a Royal Charter for a university to be called McGill College. Further delay was occasioned by litigation, and the Burnside estate was not acquired until March 1829. The Montreal Medical Institution, which had begun medical lectures at the Montreal General Hospital in 1822, was accepted by the College as its Faculty of Medicine in June 1829. After further litigation, the College received the financial endowment in 1835 and the Arts Building and Dawson Hall were erected. The Faculty of Arts opened its doors in 1843.

Progress, however, was slow until the 1821 Charter was amended in 1852 to constitute the members of the Royal Institution as the Governors of McGill College. Since that time the two bodies have been one. It was first called “The University of McGill College” but in 1885 the Governors adopted the name “McGill University”. Even after the amended charter was granted, little advance was made until 1855 when William Dawson was appointed Principal. When he retired 38 years later, McGill had over 1,000 students and Molson Hall (at the west end of the Arts Building), the Redpath Museum, the Redpath Library, the Macdonald Buildings for Engineering and Physics, and a fine suite of medical buildings had been erected.

Since then the University has continued to grow vigorously. In 1884 the first women students were admitted and in 1899 the Royal Victoria College was opened, a gift of Lord Strathcona, to provide separate teaching and residential facilities for women students. Gradually, however, classes for men and women were merged.

In 1905 Sir William Macdonald established Macdonald College at Sainte-Anne-de-Bellevue, as a residential college for Agriculture, Household Science, and the School for Teachers. Those components have since become the Faculty of Agricultural and Environmental Sciences, which includes the School of Dietetics and Human Nutrition, on the Macdonald Campus, and the Faculty of Education, located on the downtown campus. The University's general development has been greatly facilitated by the generosity of many benefactors, and particularly by the support of its graduates, as regular public funding for general and capital expenditures did not become available until the early 1950s. Since that time government grants have become a major factor in the University's financial operations, but it still relies on private support and private donors in its pursuit of excellence in teaching and research.

The University now comprises 11 faculties and 10 schools. At present over 32,000 students are taking credit courses; one in four is registered in Graduate Studies.

Revision, June 2011. Start of revision.

The University is also active in providing courses and programs to the community through the School of Continuing Studies.

Revision, June 2011. End of revision.

1.26.2 Incorporated and Affiliated Colleges

1.26.2.1 Incorporated College

Royal Victoria College

3425 University Street, Montreal, QC H3A 2A8

Revision, June 2011. Start of revision.

The Royal Victoria College, a non-teaching college of McGill University, provides residential accommodation for both men and women in a co-education environment.

Revision, June 2011. End of revision.

1.26.2.2 Affiliated Theological Colleges

Montreal Diocesan Theological College

3473 University Street, Montreal, QC H3A 2A8
Principal: J. M. Simons; B.A.(Bishop's), S.T.B.(Trin. Coll. (Tor.)), Ph.D.(G'town)
The above three colleges train students for the ministry and grant certificates for ordination but they have remitted their degree-granting powers, except with respect to the M.Div. and honorary doctorates, to the University.

1.26.3 University Government

McGill University is a corporation created by a Royal Charter granted by the Crown of the United Kingdom, a general supervisory power being retained by the Crown and exercised through the Governor General as Visitor.

The Governors of the University constitute the Royal Institution for the Advancement of Learning, a corporation existing under the laws of the Province of Quebec. In them is vested the management of finances, the appointment of professors, and other duties. Twelve of the governors are elected by the Board from amongst those nominated by its membership committee; three are elected by the Alumni Association; two are elected by Senate from amongst its members; two elected by the full-time administrative and support staff from amongst its members; two elected by the full-time academic staff; and two elected by students from amongst the student body. The Board elects the Chancellor of the University and also, from amongst its members, a chair to preside at its meetings, who may also be the Chancellor. The Chancellor and the Principal are ex officio members.

The Chancellor is presiding officer of Convocation and of joint sessions of the Board of Governors and the Senate.

The Chair of the Board of Governors is President of the Royal Institution for the Advancement of Learning.

The Principal and Vice-Chancellor is the chief executive officer of the University, appointed by the Board of Governors after consultation with a Statutory Committee to Nominate a Principal. The Principal is, ex officio, Chair of Senate.

The Senate is the highest academic authority of the University and has control over admission, courses of study, discipline, and degrees. The regulations of Senate are executed by the various faculties and schools, which also carry primary responsibility for the educational work of the University.

1.26.4 Recognition of Degrees

The Royal Institution for the Advancement of Learning (McGill University) is a publicly funded institution and holds a Royal Charter dated 1821 (amended in 1852) as well as being incorporated under the laws of the Province of Quebec.

McGill University was a founding member of the organization which evolved into the current Association of Universities and Colleges of Canada (A.U.C.C.) in which it remains very active. In addition, McGill University is a member of the American Association of Universities (A.A.U.). It is also a member of the Association of Commonwealth Universities and the International Association of Universities. Its undergraduate, professional and graduate degrees, including doctorates in a full range of disciplines, have been recognized by educational, government and private organizations worldwide for decades.

All of McGill’s degree programs are approved by the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) and the Conférence des recteurs et des principaux des universités du Québec (CREPUQ).

1.26.5 Governance: Board of Governors

1.26.5.1 The Visitor

His Excellency The Right Honourable David L. Johnston The Governor General of Canada

1.26.5.2 Board of Governors

Revision, August 2011. Start of revision.

Stuart (Kip) Cobbett; B.A., B.C.L.(McG.) Chair
H. Arnold Steinberg; C.M., B.Com.(McG.), M.B.A.(Harv.), LL.D.(McG.) Chancellor
Heather Munroe-Blum; O.C., O.Q., B.A., B.S.W.(McM.), M.S.W.(W. Laur.), Ph.D.(N. Carolina) Principal and Vice-Chancellor
Revision, August 2011. End of revision.
1.26.5.2.1 Members

Gerald Butts; B.A., M.A.(McG.)
Roshi Chadha
Peter Coughlin; B.Com.(Car.), M.B.A.(Western)
Ronald Harry Critchley; B.A.(C'dia-Loyola), M.A.(York)
Lili de Grandpré; B.A.(Western), M.B.A.(McG.)
Darren Entwistle; B.Econ.(C'dia), M.B.A.(McG.)
Kathy Fazel; B.Com.(McG.)
Morna Flood Consedine; B.A.(C'dia), M.Ed., D.Ed.(McG.)
Daniel J. Gagnier; B.A.(Loyola), M.A.(McG.), Ph.D.(ANU)
Claude Généreux; B.Eng.(McG.), M.A.(Oxf.)
David N. Harpp; A.B.(Middlebury), M.A.(Wesl.), Ph.D.(N. Carolina)
Kenneth Hastings; B.A., Ph.D.(McG.)
Samuel Minzberg; LL.B.(McG.)
Gary Pekeles; B.Sc., M.Sc.(McG.), M.D.,C.M.(Baylor)
Amir Raz; M.Sc., Ph.D.(Hebrew)
Michael Richards; B.A., B.C.L.(McG.)
Martine Turcotte; B.C.L./LL.B.(McG.), M.B.A.(London Business School)
Thierry Vandal; B.Eng., M.B.A.(Montr.)
Ann Vroom; B.A.(McG.)
Allan Youster

1.26.5.2.2 Student Representatives

Students’ Society of McGill (1)
Post-Graduate Students’ Society of McGill (1)

Observers
McGill Association of Continuing Education Students (1)
Macdonald Campus Students’ Society (1)

1.26.6 Governance: Members of Senate

1.26.6.1 Ex-officio

Revision, June 2011. Start of revision.

The Chancellor
The Chair of the Board of Governors
The Principal and Vice-Chancellor
The Provost, Deputy Provost, and the vice-principals
The deans of faculties
The Dean of Continuing Studies
The Dean of Graduate and Postdoctoral Studies
The Dean of Students
The Dean/Director of Libraries
Revision, June 2011. End of revision.

1.26.6.2 Elected Members

Revision, August 2011. Start of revision.

63 members elected by the faculties, the University Libraries, the Board of Governors, and administrative and support staff.

Medical Residents or Postdoctoral Scholars Group (1)

Student Members (19)

Revision, August 2011. End of revision.

1.26.7 Administration

Revision, August 2011. Start of revision.

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>H. Arnold Steinberg; C.M., B.Com.(McG.), M.B.A.(Harv.), LL.D.(McG.)</td>
<td>Chancellor</td>
</tr>
<tr>
<td>Heather Munroe-Blum; O.C., O.Q., B.A., B.S.W.(McM.), M.S.W.(W. Laur.), Ph.D.(N. Carolina)</td>
<td>Principal and Vice-Chancellor</td>
</tr>
<tr>
<td>Anthony C. Masi; A.B.(Colgate), Ph.D.(Brown)</td>
<td>Provost</td>
</tr>
<tr>
<td>Morton J. Mendelson; B.Sc.(McG.), Ph.D.(Harv.)</td>
<td>Deputy Provost (Student Life &amp; Learning)</td>
</tr>
<tr>
<td>Kathleen Massey; B.A.(York)</td>
<td>University Registrar and Executive Director of Enrolment Services</td>
</tr>
<tr>
<td>Jana Luker; B.A.(Guelph), B.Ed., M.Ed.(Tor.)</td>
<td>Executive Director of Services for Students</td>
</tr>
<tr>
<td>Nathalie M. Cooke; B.A. (Qu.), B.Ed., M.A.(Tor.), M.A. (C'nell), Ph.D.(Tor.)</td>
<td>Associate Provost (Academic Staff &amp; Priority Initiatives)</td>
</tr>
<tr>
<td>Jan Jorgensen; B.A., M.A.(N. Carolina), Ph.D.(McG.)</td>
<td>Associate Provost (Faculty Affairs &amp; Resource Allocation)</td>
</tr>
<tr>
<td>Lydia White; B.A., M.A.(Camb.), Ph.D.(McG)</td>
<td>Associate Provost (Policies, Procedures &amp; Equity)</td>
</tr>
<tr>
<td>Martin Kreiswirth; B.A.(Hamilton), M.A.(Chic.), Ph.D.(Tor.)</td>
<td>Associate Provost (Graduate Education) and Dean (Graduate &amp; Postdoctoral Studies)</td>
</tr>
<tr>
<td>Chandra Madramootoo; B.Sc., M.Sc., Ph.D.(McG.)</td>
<td>Associate Vice-Principal (Macdonald Campus) and Dean (Faculty of Agricultural &amp; Environmental Sciences)</td>
</tr>
<tr>
<td>Ghilaine Roquet; B.A.(UQAM), M.Sc.A.(Montr.)</td>
<td>Chief Information Officer</td>
</tr>
<tr>
<td>Stephen Stropyle; B.A.(Dal.), M.A.(York)</td>
<td>Secretary-General</td>
</tr>
<tr>
<td>Michael Di Grappa; B.A.(C'dia), M.P.P.A.(Col.), M.A.(Harv. Business School)</td>
<td>Vice-Principal (Administration &amp; Finance)</td>
</tr>
<tr>
<td>Lynne B. Gervais; B.A.(C'dia)</td>
<td>Associate Vice-Principal (Human Resources)</td>
</tr>
<tr>
<td>Jim Nicell; B.A.Sc., M.A.Sc., Ph.D.(Windsor), P.Eng.</td>
<td>Associate Vice-Principal (University Services)</td>
</tr>
<tr>
<td>Marc Weinstein; B.A., B.C.L., LL.B.(McG.)</td>
<td>Vice-Principal (Development &amp; Alumni Relations)</td>
</tr>
<tr>
<td>Richard I. Levin; B.S.(Yale), M.D.(NYU)</td>
<td>Vice-Principal (Health Affairs) and Dean (Faculty of Medicine)</td>
</tr>
<tr>
<td>Sam Benaroya; B.Sc., M.D.,C.M.(McG.)</td>
<td>Associate Vice-Principal (Health Affairs) and Associate Dean (Inter-Hospital Affairs)</td>
</tr>
<tr>
<td>Rose Goldstein; B.Sc., M.D.,C.M.(McG.)</td>
<td>Vice-Principal (Research &amp; International Relations)</td>
</tr>
<tr>
<td>Masad J. Damha; B.Sc., Ph.D. (McG.)</td>
<td>Associate Vice-Principal (Research &amp; International Relations)</td>
</tr>
<tr>
<td>Rima Rozen; B.Sc., Ph.D.(McG.)</td>
<td>Associate Vice-Principal (Research &amp; International Relations)</td>
</tr>
<tr>
<td>Vaughan Dowie</td>
<td>Executive Head of Public Affairs</td>
</tr>
</tbody>
</table>

Revision, August 2011. End of revision.

1.26.7.1 Deans, Directors of Schools and Libraries

1.26.7.1.1 Deans

Revision, August 2011. Start of revision.
Revision, August 2011. End of revision.

1.26.7.1.2 Directors of Schools

Michael Jemtrud; B.Sc., B.Arch., B.A.(Penn. St.), M.Arch.(McG.)

Marc Pell (Interim); B.A.(Ott.), M.Sc., Ph.D.(McG.)

Gregory Dudek; B.Sc.(Qu.), M.Sc., Ph.D.(Tor.)

Kristine G. Koski; B.Sc., M.Sc.(Wash.), Ph.D.(Calif.)

Marilyn Scott; B.Sc.(New Br.), Ph.D.(McG.)

France Bouthillier; B.Ed.(UQAM), M.B.S.l.(Montr.), Ph.D.(Tor.)

Hélene Ezer; B.Sc., M.Sc.(McG.), Ph.D.(Montr.)

Annette Majnemer (Interim); B.Sc., M.Sc., Ph.D.(McG.)

Wendy Thomson; B.S.W., M.S.W.(McG.), Ph.D.(Brist.)

Raphael Fischler; B.Eng.(Technische Univ Eindhoven), M.C.P.(MIT), Ph.D.(Calif.)

Agricultural & Environmental Sciences

Arts

Continuing Studies

Dentistry

Education

Engineering

Graduate & Postdoctoral Studies

Libraries

Law

Management

Medicine

Music

Religious Studies

Science

Dean of Students

1.26.8 Student Governance

All students registered in an undergraduate program on the downtown (McGill) campus are registered members of the accredited Students' Society of McGill University, affectionately known as SSMU. SSMU acts as your representation on key issues inside and outside of the campus. There are six elected executives of the SSMU who represent all 20,000-plus undergrads on the downtown campus. There is a legislative council which meets with representatives from faculty associations and other student groups around campus on a bi-weekly basis. This council of thirty-five members meets to discuss SSMU business.

The SSMU runs over 200 clubs and services and provides a great deal of extra-curricular opportunities for students to balance a life of study with a life of play and an opportunity to meet other students. The organization also provides event programming like freshman orientation (Orientation Week/Frosh), Activities Night, a holiday fair, movie screenings, Homecoming Bash, concerts, and speakers. Each faculty and each department also has organizations dedicated to providing extra-curricular involvement for their students.

Situated on the downtown campus, the SSMU operates a five-floor building including a student lounge, cafeteria, campus bar, club office space and a campus multipurpose venue.

The SSMU offices are located at 3600 McTavish Street, suite 1200 and operate between the hours of 9:00 a.m. to 5:00 p.m. during the year.

For more information regarding student government at McGill you can contact:

President: pres@ssmu.mcgill.ca
Vice President Clubs and Services: cs@ssmu.mcgill.ca
Vice President Internal Affairs: internal@ssmu.mcgill.ca
FACULTY OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES

Vice President External Affairs: external@ssmu.mcgill.ca
Vice President Finance and Operations: operations@ssmu.mcgill.ca
Vice President University Affairs: ua@ssmu.mcgill.ca

Or visit the website at www.ssmu.mcgill.ca.

Welcome to McGill and we look forward to representing your interests.

2 Faculty of Agricultural and Environmental Sciences

2.1 About the Faculty of Agricultural and Environmental Sciences, including School of Dietetics and Human Nutrition

Mission Statement: The Faculty of Agricultural and Environmental Sciences is committed to excellence in teaching, research, and service to ensure that humanity’s present and future food, health, and natural resource needs are met while protecting the environment.

2.2 History of the Faculty

Dedicated to improving the quality of life in Quebec’s rural communities, Sir William Christopher Macdonald founded the School of Agriculture, the School for Teachers, and the School of Household Science at Macdonald College in Sainte-Anne-de-Bellevue in 1906. Macdonald College opened its doors to students in 1907 and its first degrees were awarded in 1911. The School for Teachers became the Faculty of Education in 1965 and moved to the downtown campus in 1970. Currently the Macdonald Campus is home to the Faculty of Agricultural and Environmental Sciences, the School of Dietetics and Human Nutrition, and the Institute of Parasitology. The Faculty is comprised of the Departments of Animal Science, Bioresource Engineering, Food Science and Agricultural Chemistry, Natural Resource Sciences, and Plant Science. The Faculty is one of the founding members of the McGill School of Environment and is also home to the Farm Management and Technology Program. The current enrolment is just short of 1800 undergraduate and graduate students.

2.3 Macdonald Campus Facilities

2.3.1 Morgan Arboretum

The Morgan Arboretum has 245 hectares of managed and natural woodlands, fields, and tree plantations used for environmental research and teaching in a wide range of courses. Eighteen formal tree collections contain groups of Canadian native trees and many useful and important exotics. In addition, over 170 species of birds, 30 species of mammals, and 20 species of reptiles and amphibians seasonally inhabit the property. Finally, the Arboretum features 25 kilometers of ski, snowshoe, and walking trails, a variety of forest ecosystems, conservation projects, and forest operations such as maple syrup production. A nature interpretation program is also offered. More information is available at www.mcgill.ca/nrs/facilities/arboretum.

2.3.2 Macdonald Campus Library

Located in the Barton Building, the Macdonald Campus Library provides access to leading-edge print and electronic collections, facilities, and services to support a broad range of needs. The Library's collections encompass a wide variety of print and electronic resources in the areas of agriculture, nutrition, and environmental sciences.

The Library's catalogue, research databases, McGill theses, past exams, and other online resources are accessible to you via the Library website. The Library is also a depository for many print and electronic government publications. The Library's eZone computers provide access to specialized software such as ArcGIS, SAS and EndNote. Comfortable seating, study tables, group study rooms, and a 24-hour study area are also available to you. The area is equipped for direct or wireless laptop access to the McGill network and the Internet. Laptops and ebook readers can also be borrowed.

Librarians specializing in specific subject areas are available to help you find information for your course assignments or research topics, either in person or by phone, email, or chat. Tours and research workshops are provided throughout the year.

More information is available at www.mcgill.ca/library/library-using/branches/macdonald-library or feel free to drop by.

2.3.3 Macdonald Campus Computing Centre

The Macdonald Campus Computing Centre is managed by McGill's IT Customer Services (ICS) unit. Undergraduate computing labs are open 24/7, year round. The labs offer computers running Microsoft Office software, scanners, and printers.

The IT walk-in support office, located in the Macdonald-Stewart Building, Room MS 2-025, is open from 9:00 a.m. to 5:00 p.m., Monday to Friday. For support on all central IT services, contact the ICS Service Desk by email at support.ist@mcgill.ca or call 514-398-3398.
For more information and to search the IT Knowledge Base, visit the IT Services web page at www.mcgill.ca/it.

2.3.4  Lyman Entomological Museum and Research Laboratory

Originally established in 1914 and formerly housed in the Redpath Museum, the Lyman Entomological Museum was moved to the Macdonald campus in 1961. It houses the largest university collection of insects in Canada, second in size only to the National Collection. The Museum also has an active graduate research program in association with the Department of Natural Resource Sciences. Study facilities are available, on request from the Curator, to all bona fide students of entomology. Visits by other interested parties can be arranged by calling 514-398-7914. More information is available at http://lyman.mcgill.ca.

2.3.5  Brace Centre for Water Resources Management

The Brace Centre for Water Resources Management is located on the Macdonald campus. It is a multidisciplinary and advanced research and training centre of McGill University, dedicated to solving problems of water management for all human and environmental uses. It brings together staff from several McGill faculties to undertake research, teaching, specialized training, and policy and strategic studies, both in Canada and internationally. The Centre draws on the wide range of facilities available within the University. More information is available at www.mcgill.ca/brace.

2.4  Revisions – Faculty of Agricultural & Environmental Sciences

Faculty Information and Regulations

section 2.5.5.1: Minimum Credit Requirement

Bachelor of Science (Agricultural and Environmental Sciences) – B.Sc.(Ag.Env.Sc.)

section 2.7.2.3.1: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Major Agro-Environmental Sciences (42 credits)
section 2.7.2.4.1: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Major Environmental Biology (42 credits)
section 2.7.2.5.1: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Major International Agriculture and Food Systems (42 credits)
section 2.7.2.6.1: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Major Life Sciences (Biological and Agricultural) (42 credits)

Specializations

section 2.7.2.7.3: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Agriculture and Food Systems (Multidisciplinary) (24 credits)
section 2.7.2.7.4: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Animal Biology (24 credits)
section 2.7.2.7.5: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Animal Health and Disease (24 credits)
section 2.7.2.7.6: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Animal Production (24 credits)
section 2.7.2.7.7: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Applied Ecosystem Sciences (24 credits)
section 2.7.2.7.8: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Ecological Agriculture (24 credits)
section 2.7.2.7.9: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Entomology (24 credits)
section 2.7.2.7.10: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Environmental Biology (Multidisciplinary) (24 credits)
section 2.7.2.7.12: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Health and Nutrition (24 credits)
section 2.7.2.7.13: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – International Agriculture (24 credits)
section 2.7.2.7.15: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Life Sciences (Multidisciplinary) (24 credits)
section 2.7.2.7.16: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Microbiology and Molecular Biotechnology (24 credits)
section 2.7.2.7.17: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Plant Biology (24 credits)
section 2.7.2.7.18: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Plant Production (24 credits)
section 2.7.2.7.19: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Professional Agrology (21 credits)
section 2.7.2.7.20: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Soil and Water Resources (24 credits)
section 2.7.2.7.21: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Wildlife Biology (24 credits)
Bachelor of Engineering (Bioresource) – B.Eng.(Bioresource)

- Section 2.7.3.3: Bachelor of Engineering (Bioresource) (B.Eng.(Bioresource)) – Major Bioresource Engineering (113 credits)
- Section 2.7.3.4: Bachelor of Engineering (Bioresource) (B.Eng.(Bioresource)) – Major Bioresource Engineering – Professional Agrology (113 credits)

Bachelor of Science (Nutritional Sciences) – B.Sc.(Nutr.Sc.)

- Section 2.7.5.6: Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Global Nutrition (90 credits)
- Section 2.7.5.7: Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Health and Disease (90 credits)
- Section 2.7.5.8: Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Nutritional Biochemistry (90 credits)
- Section 2.7.5.9: Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Sports Nutrition (90 credits)

Department of Food Science and Agricultural Chemistry

- Section 2.12.3: Department of Food Science and Agricultural Chemistry Faculty

2.5 About the Faculty of Agricultural and Environmental Sciences, including School of Dietetics and Human Nutrition (Undergraduate)

The Faculty of Agricultural and Environmental Sciences and the School of Dietetics and Human Nutrition are located on McGill University’s Macdonald campus, which occupies 650 hectares in a beautiful waterfront setting on the western tip of the island of Montreal.

Students can earn internationally recognized degrees in the fields of agricultural sciences and applied biosciences, food and nutritional sciences, environmental sciences, and bioresource engineering. Students have the opportunity, in all programs, to study abroad in places such as Panama, Barbados, or Africa. Students may also have the opportunity to participate in internships.

Macdonald is a very diverse and international campus. Students are taught by outstanding professors who are among the top in their fields. The campus has excellent facilities for teaching and research, including well-equipped laboratories, experimental farm and field facilities, and the Morgan Arboretum. The campus is surrounded by the Ottawa and St. Lawrence rivers.

The Faculty is at the forefront of advances in the basic sciences and engineering associated with food supply, human health and nutrition, and the environment, and it is a world leader in plant and animal biotechnology, bioproducts and bioprocessing, bioinformatics, food safety and food quality, environmental engineering, water management, soils, parasitology, microbiology, and ecosystem science and management.

The Macdonald campus is an exciting place to live, work, study, learn, and discover. Its very intimate collegial and residential setting allows for strong interaction between staff and students, and for enriched student activity and participation in extracurricular activities. A hallmark of our undergraduate programs is the ability to provide hands-on learning experiences in the field and labs, and the smaller class sizes.

2.5.1 Location

McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, Quebec H9X 3V9
Canada

Telephone: 514-398-7925
Website: www.mcgill.ca/macdonald

The Faculty of Agricultural and Environmental Sciences and the School of Dietetics and Human Nutrition are located on the Macdonald campus of McGill University in Sainte-Anne-de-Bellevue at the western end of the island of Montreal.

Served by public transport (STM [www.stm.info], bus, and train), it is easily reached from the McGill Downtown campus and from the Pierre Elliott Trudeau International Airport. Special arrangements can be made for prospective students to use the McGill inter-campus shuttle bus service. The shuttle service is available to all registered students.

2.5.2 Administrative Officers

| Chandra Madramootoo; B.Sc.(Agr.Eng.), M.Sc., Ph.D.(McG.), P.Eng.(James McGill Professor) | Dean, Faculty of Agricultural and Environmental Sciences, and Associate Vice-Principal (Macdonald Campus) |
| William H. Hendershot; B.Sc.(Tor.), M.Sc.(McG.), Ph.D.(Br. Col.) | Associate Dean (Academic) |
| Suha Jabaji; B.Sc.(AUB), M.Sc.(Guelph), Ph.D.(Wat.) | Associate Dean (Research and Graduate Education) |
2.5.3 Faculty Admission Requirements

For information about the admission requirements for this Faculty, please refer to the Undergraduate Admissions Guide found at www.mcgill.ca/applying.

For information about interfaculty transfers, see University Information and Regulations > Interfaculty Transfer.

Applications are submitted directly online at www.mcgill.ca/applying. Please note that the same application is used for all undergraduate programs at McGill and two program choices can be entered. For further information, contact:

Student Affairs Office
Macdonald Campus of McGill University
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, Quebec H9X 3V9

Telephone: 514-398-7928 or 7925
Email: studentinfo.macdonald@mcgill.ca
Website: www.mcgill.ca/macdonald/prospective

More specific information on application deadlines and admission requirements can be found at www.mcgill.ca/applying.

2.5.4 Student Information

Friendly staff are on hand to answer your questions about academics, residence, athletics, student life, health concerns, and much more.

2.5.4.1 The Student Affairs Office

The Student Affairs Office, located in Laird Hall, Room 106, provides a wide variety of academic services. These include information about admission (prerequisites and program requirements), academic standing, examinations (deferrals, conflicts, rereads), exchange programs, inter-faculty transfers, program changes, registration (course change, withdrawals), scholarships (entrance and in-course), second degrees, second majors, minors, session away, and graduation (convocation).

Website: www.mcgill.ca/macdonald/studentinfo/sao

2.5.4.2 Student Services

Students who study on the Macdonald campus can make full use of all McGill Student Services. In addition, Student Services at the Macdonald campus offers a range of non-academic services, including: Career Planning Service (CaPS), Counselling, Student Financial Aid, Student Health, Off-Campus Housing, Winter Coat Project and McGill Student Parents’ Network, Blue Cross International Health Insurance cards, and the Coordination of midterm examinations for students registered with the Office for Students with Disabilities.

All Student Services, whether at the Macdonald or the Downtown campuses, fall under the direction of the Office of the Executive Director, Services for Students; see University Regulations and Resources > Support for Students. For detailed information on our services, see University Regulations and Resources > Student Services – Macdonald Campus or our website: www.mcgill.ca/macdonald-studentservices.

2.5.4.3 Macdonald Campus Residences

You can apply for residence in either of two distinctive facilities:

Laird Hall, with a capacity of 250 students, is arranged on a co-educational basis and provides single- and double-room accommodation for both undergraduate and graduate students.

The EcoResidence accommodates 100 students in apartment-style living. It offers fully furnished six-plex and two-plex apartments including individual bedrooms.

For further information, refer to University Regulations and Resources > Residential Facilities > University Residences – Macdonald Campus; www.mcgill.ca/macdonald-residences or email residences.macdonald@mcgill.ca.
2.5.4.4 Student Life

All undergraduate, postgraduate, and Farm Management and Technology students are members of the Macdonald Campus Students' Society. The MCSS, through the 18-member Students' Council, is involved in numerous campus activities such as social events, academic affairs, and the coordination of clubs and organizations. Student life is informal and friendly, and student groups range from the Outdoor Adventure Club to the Photography Society. Major social events include Frosh activities, Halloween Party, and Winter Carnival. The Ceilidh, a student-run bar located in the Centennial Centre, is open every Thursday night.

The Centennial Centre is the centre of student life, offering facilities for student activities, such as meeting rooms, club rooms, pool tables, and great places to relax, listen to music, and meet friends. Also located in the Centre are the Students’ Council offices, an information desk, and the Robber's Roost Campus Bookstore.

2.5.4.5 Student Rights and Responsibilities

The Handbook on Student Rights and Responsibilities is published jointly by the Office of the Dean of Students and the University Secretariat. A copy of the Handbook can be found at www.mcgill.ca/secretariat/policies/students.

2.5.4.6 Fees

The University reserves the right to make changes without notice in its published scale of tuition, residence, and other fees.

Payment of student fees can be made directly on Minerva through Internet banking or preauthorized debit charges. Electronic billing is the official means of delivering fee statements to all McGill students. The University generally produces e-bills at the beginning of the month and sends an email notification to your official McGill email address stating that your e-bill is available for viewing on Minerva.

The University shall have no obligation to issue any transcript of record, award any diploma, or re-register a student in case of non-payment of tuition fees, library fines, residence fees, or loans on their due date.

2.5.4.6.1 Tuition Fees

General information on tuition and other fees is found under University Regulations and Resources > Fees.

2.5.4.6.2 Other Expenses

In addition to tuition fees and the cost of accommodation and meals, you should be prepared to spend a minimum of $1,000 (depending on your program) on prescribed textbooks and classroom supplies. These may be purchased at the Campus Bookstore in the Centennial Centre.

Uniforms are required for food laboratories. If you are in the B.Sc.(Nutr.Sc.) program, you will be advised of the uniform requirements on acceptance or promotion.

2.5.4.7 Immunization for Dietetics Majors

As a student in the Dietetics Major, you are required to complete the Compulsory Immunization Program for Health Care Students prior to or at the commencement of the U1 Winter Professional Practice (Stage) course NUTR 208. Participation in Professional Practice (Stage) in Dietetics will only be permitted after you have completed all immunization requirements, and certain deadlines will apply. Updates to your immunizations may be required during your program. For full details, see www.mcgill.ca/studenthealth/forms/healthsciences.

2.5.4.8 Language Requirement for Professions

Quebec law requires that candidates seeking admission to provincially recognized Quebec professional corporations or Ordres have a working knowledge of the French language, i.e., be able to communicate verbally and in writing in that language. Agrologists, chemists, dietitians, and engineers are among those within this group.

For additional information, see University Regulations and Resources > Admission to Professional and Graduate Studies > Language Requirements for Professions.

2.5.5 Faculty Information and Regulations

Each student in the Faculty of Agricultural and Environmental Sciences must be aware of the Faculty Regulations as stated in this publication. While departmental and faculty advisers and staff are always available to give advice and guidance, the ultimate responsibility for completeness and correctness of your course selection and registration, for compliance with, and completion of your program and degree requirements, and for the observance of regulations and deadlines, rests with you. It is your responsibility to seek guidance if in any doubt; misunderstanding or misapprehension will not be accepted as cause for dispensation from any regulation, deadline, program, or degree requirement.

2.5.5.1 Minimum Credit Requirement

You must complete the minimum credit requirement for your degree as specified in your letter of admission.

Students are normally admitted to a four-year program requiring the completion of 120 credits, but advanced standing of up to 30 credits may be granted if you obtain satisfactory results in the Diploma of Collegial Studies, International Baccalaureate, French Baccalaureate, Advanced Levels, and Advanced Placement tests.
Normally, Quebec students who have completed the Diplôme d'études collégiales (DEC) or equivalent diploma are admitted to the first year of a program requiring the completion of a minimum of 90 credits, 113 credits for Bioresource Engineering, 115 credits for Dietetics plus any missing basic science prerequisites, and 122 credits for the Concurrent Degrees in Food Science and Nutritional Sciences.

Students from outside Quebec who are admitted on the basis of a high school diploma enter the Freshman Major, which comprises 30 credits (see section 2.7.1: Freshman Major in this publication).

You will not receive credit toward your degree for any course that overlaps in content with a course successfully completed at McGill, at another university, at CEGEP, or Advanced Placement exams, Advanced Level results, International Baccalaureate Diploma, or French Baccalaureate.

Revision, August 2011. Start of revision.

If you are a student in the B.Sc.(Ag.Env.Sc.) and in the Diploma in Environment (AES), you must take a minimum of two-thirds of your course credits within the Faculty of Agricultural and Environmental Sciences.

Revision, August 2011. End of revision.

2.5.5.2 Minimum Grade Requirement

You must obtain grades of C or better in any required, complementary, and Freshman courses used to fulfill program requirements. You may not register in a course for which you have not passed all the prerequisite courses with a grade of C or better, except by written permission of the Departmental Chair concerned.

2.5.5.3 Academic Advisers

Upon entering the Faculty and before registering, you must consult with the academic adviser of your program for selection and scheduling of required, complementary, and elective courses. The academic adviser will normally continue to act in this capacity for the duration of your studies in the Faculty.

A faculty adviser is also available in the Student Affairs Office to assist you with student record related matters.

2.5.5.4 Categories of Students

2.5.5.4.1 Full-Time Students

Full-time students in Satisfactory Standing take a minimum of 12 credits per term. (A normal course load is considered to be 15 credits per term.) Students in Probationary Standing are not normally permitted to take more than 14 credits per term. In exceptional circumstances, the Committee on Academic Standing may give permission to attempt more.

2.5.5.4.2 Part-time Students

Part-time students carry fewer than 12 credits per term.

2.5.5.5 Academic Standing

You must prove that you can master the material of lectures and laboratories. Examinations are normally held at the end of each course, but other methods of evaluation may also be used. The grade assigned for a course represents your Standing in all the coursework.

The following rules apply to your Academic Standing:

1. When your CGPA (or TGPA in the first term of the program) falls below 2.00, your Academic Standing becomes Probationary.
2. If you are in Probationary Standing, you may register for no more than 14 credits per term.
3. While in Probationary standing, you must achieve a TGPA of 2.50 to continue in Probationary Standing or a CGPA of 2.00 in order to return to Satisfactory Standing. Failure to meet at least one of these conditions will result in Unsatisfactory Standing. (In the case of Fall term, this will be Interim Unsatisfactory Standing and the rules for Probationary Standing will apply.)
4. When your CGPA (or TGPA in the first term of the program) falls below 1.50, your Academic Standing becomes Unsatisfactory and you must withdraw. (In the case of Fall term, the standing will be Interim Unsatisfactory standing and the rules for Probationary standing will apply.)
5. If you are in Unsatisfactory Standing, you may not continue in your program. You may apply for readmission only after your registration has been interrupted for at least one term (not including Summer term).
6. Readmission will be in the Standing Unsatisfactory/Readmit and a CGPA of 2.00 must be achieved to return to Satisfactory standing or a TGPA of 2.50 must be achieved for Probationary Standing. If you fail to meet at least one of these conditions, you will be required to withdraw permanently.
7. Students in the School of Dietetics and Human Nutrition have additional standards in place for the professional program (Dietetics). See section 2.7.5.4: Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) - Major Dietetics (115 credits).

2.5.5.5.1 Committee on Academic Standing

The Faculty’s Committee on Academic Standing, consisting of academic staff, administrative staff, and a student representative, reviews special requests made by students regarding their academic life.

2.5.5.6 Credit System

The credit assigned to a particular course reflects the amount of effort it demands of you. As a guideline, a one-credit course would represent approximately 45 hours total work per course. This is, in general, a combination of lecture hours and other contact hours such as laboratory periods, tutorials, and problem periods as well as personal study hours.
Please refer to University Regulations and Resources > Credit System.

2.5.5.6.1 School of Continuing Studies Courses

Not all School of Continuing Studies credit courses are recognized for credit within Faculty degree programs. Please contact the Student Affairs Office before registering for such courses.

2.5.5.7 Academic Credit Transfer

Transfer credits based on courses taken at other institutions (completed with a grade of C or better) before entrance to this Faculty are calculated and assigned after you are accepted, and have accepted the offer of admission.

Transfer credits may also be granted for courses taken at other institutions (completed with a grade of C or better) while you are attending McGill University. You must secure permission to apply such credits to your program in this Faculty before you begin the work. Prior Approval Forms are available in the Student Affairs Office in the Faculty. Grades obtained in such courses do not enter into calculations of grade point averages (GPA).

Exemption from a required or complementary course on the basis of work completed at another institution must be approved by both the instructor of the appropriate McGill course and the Academic Adviser.

As a full-time degree student, you may register, with approval of the Student Affairs Office, for course(s) at any university in the province of Quebec through CREPUQ. Those courses successfully completed with a minimum grade of C (according to the standards of the university giving the course) will be recognized for the purpose of your degree, but the grades obtained will not enter into your GPA calculations.

For further details, see University Regulations and Resources > Registration > Quebec Inter-University Transfer Agreement (IUT), or go to www.crepuq.qc.ca to access the online application.

2.5.5.8 Regulations Regarding Second Academic Majors

While registered in a major in the Faculty of Agricultural and Environmental Sciences, you may pursue a second set of courses of greater scope than a minor (e.g., Faculty program, Major, Honours program, Major concentration) in either this Faculty or another faculty. Application for a Second Academic Major must be made to the Associate Dean (Student Affairs) in the Student Affairs Office, Laird Hall, Room 106. Following are the regulations and procedures for Second Academic Majors:

1. You must be in Satisfactory Academic Standing with a minimum CGPA of 3.00 in order to apply for a Second Academic Major.
2. In consultation with the appropriate authority associated with each major (Academic Adviser, Associate Dean), you must construct a proposal showing all the courses that are to be taken to satisfy the entrance and program requirements of both the First and Second Academic Majors.
3. A minimum of 36 credits must be unique to the Second Major (i.e., not part of the required or complementary courses taken for the First Major).
4. You must obtain prior approval for all proposed Second Academic Majors from your Academic Adviser and the Student Affairs Office and from the Associate Dean, adviser, or appropriate committee of the other faculty concerned.
5. Normally, proposals for Second Academic Majors will be initiated before completion of U1 year of the First Academic Major.
6. The academic standards applicable to each major will be respected.

2.5.5.8.1 Procedures for Minor Programs

If you want to register for a Minor program, you must complete a Minor Approval form (usually at the beginning of your U2 year), and return it duly completed to the Student Affairs Office. The Minor program will then be added to your record and will automatically continue each year unless you officially cancel it in writing. If you want to cancel the Minor, you must notify both the Minor Adviser and the Student Affairs Office. The Minor Approval form is available on the Faculty website and in the Student Affairs Office, Laird Hall, Room 106.

2.5.5.9 Course Change Information

2. Course withdrawal (Transcript notation of “W”): please refer to University Regulations and Resources > Registration > Regulations Concerning Course Withdrawal, and the Important Dates website www.mcgill.ca/importantdates.
3. Other changes: information about changes may be obtained from the Student Affairs Office of the Faculty.

2.5.5.10 Graduate Courses Available to Undergraduates

Undergraduates who want to take graduate courses must have a cumulative grade point average (CGPA) of at least 3.20. Final approval must be obtained from Graduate and Postdoctoral Studies. Be advised that graduate courses taken for credit toward an undergraduate degree will not be credited toward a graduate program.

2.5.5.11 Attendance and Conduct in Class

Matters of discipline connected with, or arising from, the general arrangement for teaching are under the jurisdiction of the Dean of the Faculty.

Students may be admonished by a professor or instructor for dishonest or improper conduct. If disciplinary action is required, it must be reported to the Associate Dean (Student Affairs).

Punctual attendance at all classes, laboratory periods, tests, etc., is expected of all students.
2.5.5.12 Incomplete Grades

An instructor who believes that there is justification for a student to delay submitting term work may extend the deadline until after the end of the course. In this case, the instructor will submit a grade of K (incomplete), indicating the date by which the work is to be completed. The maximum extensions for the submission of grades to the Student Affairs Office are as follows:

<table>
<thead>
<tr>
<th>Students graduating in June</th>
<th>Non-graduating students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall courses</td>
<td>Fall courses</td>
</tr>
<tr>
<td>Winter courses, and courses spanning Fall/Winter</td>
<td>Winter courses, and courses spanning Fall/Winter</td>
</tr>
<tr>
<td>January 15</td>
<td>January 15</td>
</tr>
<tr>
<td>April 30</td>
<td>May 15</td>
</tr>
</tbody>
</table>

Students’ deadlines for submitting their work must be sufficiently in advance of these dates to ensure that the work can be graded and the mark submitted on time. It is important to note that instructors may impose earlier deadlines than those listed above.

If instructors have not submitted marks to clear Ks to the Student Affairs Office by the above dates, the K is automatically changed to a KF and counts as an F in the GPA.

Students with a grade of K who have serious extenuating circumstances may request an extension of the K deadline (KE) from the Associate Dean (Student Affairs). Refer to University Regulations and Resources > Student Records > Grading and Grade Point Averages (GPA) for more information about grading and credit.

2.5.5.13 Examinations

You should refer to University Regulations and Resources > Examinations for information about final examinations and deferred examinations. Examination schedules are posted on the McGill website, www.mcgill.ca, normally one month after the start of classes for the Tentative Exam Schedule, and two months after the start of classes for the Final Exam Schedule.

Every student has a right to write essays, examinations, and theses in English or in French except in courses where knowledge of a language is one of the objectives of the course.

Oral presentations made as part of course requirements are in English.

2.5.5.13.1 Reassessments and Rereads

In accordance with the Charter of Student Rights, and subject to its stated conditions, you have the right to consult any written submission for which you have received a mark. You also have the right to discuss this submission with the examiner.

If, after discussion with your instructor, you want to have a formal final examination reread, you must apply in writing to the Associate Dean (Student Affairs). The following conditions apply:

- grades may be either raised or lowered as the result of a reread;
- rereads in courses outside the Faculty of Agricultural and Environmental Sciences are subject to the deadlines, rules, and regulations of the relevant faculty.

Application for rereads must be made by March 31 for Fall term courses and by September 30 for Winter term and Summer term courses. You are assessed a fee for formal rereads. Any request to have term work re-evaluated must be made directly to the instructor concerned.

Any request to have in-course submissions reassessed must be made within 10 working days after the graded material has been made available to you.

2.5.5.13.2 Deferred Examinations

The Faculty offers deferred exams for medical reasons and exceptional circumstances (to be approved by the Associate Dean (Student Affairs)) for the Fall and Winter periods. Verify dates on the Important Dates website at www.mcgill.ca/importantdates, apply on Minerva, and provide medical documentation to the Student Affairs Office.

2.5.5.14 Degree Requirements

To be eligible for a B.Eng. (Bioresource), B.Sc. (Ag.Env.Sc.), B.Sc. (F.Sc.), or Concurrent B.Sc. (F.Sc.) and B.Sc. (Nutr.Sc.) degree, you must have passed, or achieved exemption, with a minimum grade of C in all required and complementary courses of the program. You must also have a CGPA of at least 2.00.

In addition, if you are a student in the Dietetics program, you must have completed the Stages of professional formation requiring a CGPA of 3.00.

You must have completed all Faculty and program requirements; see section 2.5.5.1: Minimum Credit Requirement in this publication.

In order to qualify for a McGill degree, you must complete a minimum residency requirement of 60 credits at McGill. If you are in the B.Sc. (Ag.Env.Sc.), you must take a minimum of two-thirds of your course credits within the Faculty of Agricultural and Environmental Sciences.
2.5.5.15 Dean’s Honour List
For information on the designation of Dean’s Honour List awarded at graduation, see University Regulations and Resources > Dean’s Honour List in this publication.

2.5.5.16 Distinction
For information on the designation of Distinction awarded at graduation, see University Regulations and Resources > Distinction in this publication.

2.5.5.17 Honours and First Class Honours
Departments may recommend to the Faculty that graduating students registered in an honours program be awarded Honours or First-Class Honours under the following conditions:

- you must complete all honours program requirements; for Honours, the CGPA at graduation must be at least 3.00;
- for First-Class Honours, the CGPA at graduation must be at least 3.50;
- some programs may impose additional requirements, which must be met before you are recommended for Honours or First-Class Honours.

Students in an honours program whose CGPA is below 3.00, or who did not satisfy certain program requirements, must consult their academic adviser to determine their eligibility to graduate in a program other than Honours.

2.5.5.18 Scholarships, Bursaries, Prizes, and Medals
Various scholarships, bursaries, prizes, and medals are open to entering, in-course, and graduating students. No application is required. Full details of these are set out in the Undergraduate Scholarships and Awards Calendar, available at www.mcgill.ca/students/courses/calendars.

2.6 Overview of Programs Offered by the Faculty of Agricultural and Environmental Sciences
The Faculty of Agricultural and Environmental Sciences and the School of Dietetics and Human Nutrition offer degrees in Bachelor of Science (Agricultural and Environmental Sciences), Bachelor of Engineering (Bioresource Engineering), Bachelor of Science (Food Science), Bachelor of Science (Nutritional Sciences), Concurrent degree program in Food Science and Nutritional Sciences, Certificate in Food Science, Certificate in Ecological Agriculture, Diploma in Environmental Management, and Diploma of Collegial Studies in Farm Management and Technology.

The Faculty of Agricultural and Environmental Sciences is one of the four faculties in partnership with the McGill School of Environment.

Several programs offered by the Faculty and School lead toward professional accreditation. These include the Dietetics Major (membership in the Dietitians of Canada and the Ordre professionnel des diététistes du Québec); the Agricultural Economics Major and the Agro-Environmental Sciences Major (membership in the Ordre des agronomes du Québec and other provincial Institutes of Agriculture); Bioresource Engineering (membership as a professional engineer in any province of Canada plus the Ordre des agronomes du Québec); and Food Science (accreditation by the Institute of Food Technologists and professional accreditation by the Ordre des chimistes du Québec). Professional Practice experiences to complete the Dietetics practicum are provided in the McGill teaching hospitals and in a wide variety of health, education, business, government, and community agencies.

The Faculty also offers M.Sc. and Ph.D. programs in the areas of Agricultural Sciences, Biological Sciences, Bioresource Engineering, Biotechnology, Environmental Sciences, Food Science, and Nutritional Sciences. M.Sc.(Applied) programs are offered in some disciplines. In addition, a Graduate Certificate in Biotechnology, a Graduate Diploma in Dietitian Credentialing, a Graduate Certificate in Bioinformatics, and a Graduate Option in Environment are offered.

section 2.7.2: Bachelor of Science (Agricultural and Environmental Sciences) – B.Sc.(Ag.Env.Sc.)
section 2.7.3: Bachelor of Engineering (Bioresource) – B.Eng.(Bioresource)
section 2.7.4: Bachelor of Science (Food Science) - B.Sc.(F.Sc.)
section 2.7.5: Bachelor of Science (Nutritional Sciences) – B.Sc.(Nutr.Sc.)
section 2.6.7: Concurrent Bachelor of Science in Food Science – B.Sc.(F.Sc.) and Bachelor of Science in Nutritional Sciences – B.Sc.(Nutr.Sc.)
section 2.6.8: Honours Program
section 2.6.9: Minor Programs
section 2.6.10: Post-Baccalaureate Certificate Programs
section 2.6.11: Diploma Program (Undergraduate)
section 2.6.12: Diploma in Collegial Studies
section 2.6.13: Environmental Sciences Programs
2.6.1 Internship Opportunities and Co-op Experience

2.6.1.1 FAES 200/300 Internship Program
As a full-time undergraduate student (with a CGPA of 2.9 or higher) in one of the following programs: B.Sc.(Ag.Env.Sc.), B.Sc.(F.Sc.), and B.Eng.(Bioresource), you have the opportunity to participate in the Internship program. It's a non-credit (Pass/Fail only) course, where you can intern in a place related to your field of study.

The internship should be a minimum length of 14 weeks, working 35 hours a week or more. Internships are a great way to get your foot in the door and experience practical work firsthand and see how it compliments your studies.

2.6.1.2 AGRI 310 Internship in Agriculture/Environment
The objective of AGRI 310 is to give you experience working in an enterprise that is related to your field of study, and to find out how your studies can contribute to your understanding and performance in the workplace environment. Through observations of the enterprise function, the decision-making process and the economic constraints, you should obtain a better understanding of the technical, economic, and social challenges faced by enterprises working in your chosen field of study.

2.6.1.3 AGRI 410 D1 and D2 Internship and Co-op Experience
As a qualified student in the B.Sc.(Ag.Env.Sc.), you have the opportunity to participate in a summer-long internship related to your field of study. If you aspire to become a professional agrologist, you will be required to complete an internship under the supervision of a professional agrologist.

AGRI 410 is part of the professional agrology specialization and is obligatory for students wanting to become professional agrologists (agronomes) in Quebec as part of the 6 credits of practical training required by the Ordre des agronomes du Québec.

Most undergraduate programs offered in the Faculty include the opportunity for a co-op work experience. Internships and co-op experience both involve a work placement of 12 to 16 weeks’ duration where you are exposed to the main areas of operation of your employer. Each work placement is unique, and you benefit from a program developed exclusively for you by both your employer and your instructor.

When you register for an internship or co-op experience, you benefit from the practical learning that you undergo during your work term in a meaningful job situation. As well, you benefit from the non-tangible learning experience that comes from the increased responsibilities needed to acquire and successfully complete your work term.

You also have the opportunity to pursue a 6-credit internship within the Barbados and Panama Field Studies semesters. For details, see Field Studies and Study Abroad > Field Study Semesters and Off-campus Courses.

2.6.2 Exchange Programs
The Faculty of Agricultural and Environmental Sciences participates in all University-wide student exchange programs available at McGill and also has Faculty-specific exchange programs. For more information, see Field Studies and Study Abroad > Exchange Programs.

2.6.3 Bachelor of Science in Agricultural and Environmental Sciences – B.Sc.(Ag.Env.Sc.)
See section 2.7.2: Bachelor of Science (Agricultural and Environmental Sciences) – B.Sc.(Ag.Env.Sc.) for details.

2.6.3.1 Major Programs
Graduates of programs marked with an asterisk (*) are eligible for membership in the Ordre des agronomes du Québec and other provincial institutes of agriculture.

Agricultural Economics*
Agro-Environmental Sciences*
Environmental Biology

Environment, under McGill School of Environment:
- Biodiversity and Conservation Domain
- Ecological Determinants of Health Domain
- Environmetrics Domain
- Food Production and Environment Domain
- Land Surface Processes and Environmental Change Domain
- Renewable Resource Management Domain
- Water Environments and Ecosystems Domain

International Agriculture and Food Systems
Life Sciences (Biological and Agricultural)

2.6.3.2 Specializations for Major Programs in the B.Sc.(Ag.Env.Sc.)

Agribusiness
Agriculture and Food Systems (Multidisciplinary)
Animal Biology
Animal Health and Disease
Animal Production
Applied Ecosystem Sciences
Ecological Agriculture
Entomology
Environmental Biology (Multidisciplinary)
Environmental Economics
Health and Nutrition
International Agriculture
International Development (closed to further admissions)
Life Sciences (Multidisciplinary)
Microbiology and Molecular Biotechnology
Plant Biology
Plant Production
Professional Agrology
Soil and Water Resources
Wildlife Biology

2.6.3.2.1 Pre 2011-2012

The programs listed below were in effect until the 2011-2012 academic year. Consult the 2010-2011 Undergraduate Programs, Courses and University Regulations publication at www.mcgill.ca/study/2010-2011 or previous Calendars at www.mcgill.ca/students/courses/calendars for program requirements, or consult your academic adviser.

Agribusiness Option
Environmental Economics Option
Agricultural Economics Specialization
International Development Specialization
Microbiology Specialization
Molecular Biotechnology Specialization
Plant Protection Specialization

2.6.4 Bachelor of Engineering in Bioresource Engineering – B.Eng.(Bioresource)

See section 2.7.3: Bachelor of Engineering (Bioresource) – B.Eng.(Bioresource) for details.

The program leads to eligibility in any provincial professional engineering order. The Professional Agrology Option leads to eligibility in the Ordre des agronomes du Québec.

Bioresource Engineering:

Agricultural Engineering Stream
Bioresource Engineering:
- Bio-Environmental Engineering Stream
- Ecological Engineering Stream
- Food and Bioprocess Engineering Stream
- Soil and Water Engineering Stream
- Professional Agrology Option

2.6.5 Bachelor of Science in Food Science – B.Sc.(F.Sc.)
See section 2.7.4: Bachelor of Science (Food Science) - B.Sc.(F.Sc.) for details.

Food Science:
- Food Chemistry Option
- Food Science Option

2.6.6 Bachelor of Science in Nutritional Sciences – B.Sc.(Nutr.Sc.)
Two majors are offered by the School of Dietetics and Human Nutrition. See section 2.7.5: Bachelor of Science (Nutritional Sciences) – B.Sc.(Nutr.Sc.) for details.

Dietetics (professional program leading to professional licensing as Dietitian/Nutritionist)

Nutrition:
- Food Function and Safety
- Global Nutrition
- Nutritional Biochemistry
- Sports Nutrition

2.6.7 Concurrent Bachelor of Science in Food Science – B.Sc.(F.Sc.) and Bachelor of Science in Nutritional Sciences – B.Sc.(Nutr.Sc.)
See section 2.7.4.3: Concurrent Bachelor of Science in Food Science (B.Sc.(F.Sc.)) and Bachelor of Science Nutritional Sciences (B.Sc.(Nutr.Sc.)) - Food Science/Nutritional Science Major (122 credits) for details.

Food Science / Nutritional Science

2.6.8 Honours Program
Environment, under McGill School of Environment

2.6.9 Minor Programs
- Agricultural Economics
- Agricultural Production
- Animal Biology
- Animal Health and Disease
- Ecological Agriculture
- Environmental Engineering
2.6.10 Post-Baccalaureate Certificate Programs

The Faculty offers the following post-baccalaureate certificate programs.

- Bioinformatics
- Ecological Agriculture
- Food Science

2.6.11 Diploma Program (Undergraduate)

- Diploma in Environment, under McGill School of Environment

2.6.12 Diploma in Collegial Studies

- Farm Management and Technology

2.6.13 Environmental Sciences Programs

2.6.13.1 McGill School of Environment (MSE)

The MSE is a joint initiative of the Faculty of Agricultural and Environmental Sciences, the Faculty of Arts, the Faculty of Science, and the Faculty of Law. It offers a B.Sc.(Ag.Env.Sc.) Major in Environment, a B.Sc. Major in Environment, a B.A. & Sc. Interfaculty Program in Environment, a B.A. in Environment, a Minor in Environment and a Diploma in Environment. The MSE programs allow you to choose to study on both the Macdonald and Downtown campuses.

A list of the B.Sc.(Ag.Env.Sc.) domains is given under section 2.7.2: Bachelor of Science (Agricultural and Environmental Sciences) – B.Sc.(Ag.Env.Sc.). Further information on all programs is given under McGill School of Environment and on the MSE website: www.mcgill.ca/mse.

2.6.13.2 Environmental Programs on the Macdonald Campus

A number of integrated environmental science programs are also offered on the Macdonald campus, particularly within the B.Sc.(Ag.Env.Sc.) and B.Eng.(Bioresource) degrees. The objective of these interdepartmental programs is to provide you with a well-rounded training in a specific interdisciplinary subject as well as the basis for managing natural resources. For a complete list of the programs, see section 2.6: Overview of Programs Offered by the Faculty of Agricultural and Environmental Sciences.

2.7 Academic Programs

Degree programs at the undergraduate level in the Faculty may lead to a B.Sc. degree in Agricultural and Environmental Sciences (Ag.Env.Sc.), Food Science (F.Sc.), Nutritional Sciences (Nutr.Sc.), or a B.Eng. degree in Bioresource Engineering. The Faculty also offers students the possibility of doing concurrent B.Sc. degrees in both Food Science and Nutritional Sciences.

2.7.1 Freshman Major

Program Director

Dr. Marcia Knutt
Macdonald-Stewart Building, Room 1-022
Telephone: 514-398-7976
The Freshman Program is designed to provide a basic science foundation to students entering university for the first time from a high school system (outside of the Quebec CEGEP system). The Freshman year consists of at least 30 credits in Fundamental Math and Science courses as preparation for one of the following degree programs:

- B.Sc. (Agricultural & Environmental Sciences)
- B.Eng. (Bioresource)
- B.Sc. (Nutritional Sciences)
- B.Sc. (Food Science)
- Concurrent B.Sc. (Food Science) and B.Sc. (Nutritional Sciences)

Students who have completed the Diploma of Collegial Studies, Advanced Placement Exams, Advanced Levels, the International Baccalaureate, the French Baccalaureate, or McGill Placement examinations may receive exemption and/or credit for all or part of the Basic Science courses in biology, chemistry, physics and mathematics. Similarly, students who have completed courses at other universities or colleges may receive exemptions and/or credits. Students should consult with the Faculty's Student Affairs Office.

### Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Freshman Program (30 credits)

(All majors except Agricultural Economics - see Advising Notes below*)

If you are entering university for the first time from a high school system, outside of the Quebec CEGEP system, you will be required to complete a Freshman year of at least 30 credits as listed below.

Normally, students registered in the Faculty of Agricultural and Environmental Sciences Freshman program may take a maximum of 8 credits outside the Faculty offerings to meet the requirements of the program. Permission to exceed this limit must be received from the Associate Dean (Student Affairs) prior to registration.

Note: If you are not certain that you have adequate math and/or physics skills to commence the freshman year you may wish to take preparatory courses prior to the normal Fall semester. You are encouraged to discuss your potential need with your academic adviser. Mathematical skill level will be determined during the first week of classes. Your freshman adviser may recommend that you register for an additional weekly Pre-Calculus Lab, of one credit, which may be applied towards the required credits of the degree program.

Freshman Adviser: Dr. Alice Cherestes
Macdonald-Stewart Building, Room 1-023
Telephone: 514-398-7980

<table>
<thead>
<tr>
<th>Required Courses - Fall (14.5 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEBI 120</td>
</tr>
<tr>
<td>AECH 110</td>
</tr>
<tr>
<td>AEMA 101</td>
</tr>
<tr>
<td>AEPH 112</td>
</tr>
<tr>
<td>AGRI 195</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Required Courses - Winter (12.5 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AECH 111</td>
</tr>
<tr>
<td>AEMA 102</td>
</tr>
<tr>
<td>AEPH 114</td>
</tr>
<tr>
<td>AGRI 196</td>
</tr>
</tbody>
</table>

| Elective - Winter (3 credits) |

### B.Sc. (Ag. & Env. Sci.) - Agricultural Economics Major - Freshman Program (30 credits)

If you are entering university for the first time from a high school system, outside of the Quebec CEGEP system, you will be required to complete a Freshman year of at least 30 credits as listed below.

Note: If you are not certain that you have adequate math and/or physics skills to commence the Freshman year you may wish to take preparatory courses prior to the normal Fall semester. You are encouraged to discuss your potential need with your academic adviser. Mathematical skill level will be determined during the first week of classes. Your freshman adviser may recommend that you register for an additional weekly Pre-calculus Lab, of one credit, which may be applied towards the required credits of the degree program.

Freshman Adviser: Dr. Alice Cherestes
Macdonald-Stewart Building, Room 1-023
Required Courses - Fall (14 credits)
- AECH 110 (4) General Chemistry 1
- AEMA 101 (3) Calculus 1
- AEPH 112 (4) Introductory Physics 1
- AGEC 200** (3) Principles of Microeconomics

Required Courses - Winter (10 credits)
- AEBI 122 (3) Cell Biology
- AEHM 205 (3) Science Literacy
- AEMA 102 (4) Calculus 2

Complementary Courses - Winter (6 credits)
One of the following:
- BREE 103 (3) Linear Algebra
- NUTR 301 (3) Psychology

One of the following:
- AGEC 201** (3) Principles of Macroeconomics
- AGEC 231** (3) Economic Systems of Agriculture

Advising Notes:
* Freshman students intending to major in Agricultural Economics in the B.Sc. (Ag. & Env. Sci.) degree program should note that the courses AEBI 120 (General Biology), AECH 111 (General Chemistry 2), and AEPH 114 (Introductory Physics 2) are required for all other majors in the B.Sc. (Ag. & Env. Sci.) degree. Students who are uncertain about their choice of major should be completing the "regular" Agricultural & Environmental Sciences Freshman program; the AGEC 200/201 courses would then be taken as part of the "regular" U1 curriculum should they ultimately decide on the Agricultural Economics Major.

** Freshman students planning to choose the Agricultural Economics Major will still be required to complete 90 credits in the Major. Since AGEC 200 and AGEC 201/AGEC 231 are normally required in the U1 year of the program, students who take these courses in their freshman year will be required to substitute 6 other credits. Students should discuss suitable replacement courses with their adviser.

Bachelor of Engineering (Bioresource) (B.Eng.(Bioresource)) - Freshman Program (30 credits)
If you are entering university for the first time from a high school system (outside of the Quebec CEGEP system) you will be required to complete a Freshman year of at least 30 credits as listed below.

Normally, students registered in the Faculty of Agricultural and Environmental Sciences Freshman program may take a maximum of 8 credits outside the Faculty offerings to meet the requirements of the program. Permission to exceed this limit must be received from the Associate Dean (Student Affairs) prior to registration.

Note: If you are not certain that you have adequate math and/or physics skills to commence the freshman year you may wish to take preparatory courses prior to the normal Fall semester. You are encouraged to discuss your potential need with your academic adviser. Mathematical skill level will be determined during the first week of classes. Your Freshman adviser may recommend that you register for an additional weekly Pre-calculus Lab, of one credit, which may be applied towards the required credits of the degree program.

Freshman Adviser: Dr. Marcia Knutt
Macdonald-Stewart Building, Room 1-022
Telephone: 514-398-7976

Required Courses - Fall (14.5 credits)
- AEBI 120 (3) General Biology
Required Courses - Winter (15.5 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AECH 111</td>
<td>4</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>AEMA 102</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>AEPH 115</td>
<td>4</td>
<td>Physics 2</td>
</tr>
<tr>
<td>BREE 103</td>
<td>3</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>BREE 188</td>
<td>.5</td>
<td>Freshman Seminar 2</td>
</tr>
</tbody>
</table>

2.7.1.3 Bachelor of Science (Food Science) (B.Sc.(F.Sc.)) - Freshman Program (30 credits)

If you are entering university for the first time from a high school system (outside of the Quebec CEGEP system), you will be required to complete a freshman year of at least 30 credits as listed below.

Normally, students registered in the Faculty of Agricultural and Environmental Sciences Freshman program may take a maximum of 8 credits outside the Faculty offerings to meet the requirements of the program. Permission to exceed this limit must be received from the Associate Dean (Student Affairs) prior to registration.

Note: If you are not certain that you have adequate math and/or physics skills to commence the Freshman year, you may wish to take preparatory courses prior to the normal Fall semester. You are encouraged to discuss your potential need with your academic adviser. Mathematical skill level will be determined during the first week of classes. Your Freshman adviser may recommend that you register for an additional weekly Pre-calculus Lab, of one credit, which may be applied towards the required credits of the degree program.

Freshman Adviser: Dr. Alice Cherestes
Macdonald-Stewart Building, Room 1-023
Telephone: 514-398-7980

Required Courses - Fall (14.5 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEBI 120</td>
<td>3</td>
<td>General Biology</td>
</tr>
<tr>
<td>AECH 110</td>
<td>4</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>AEMA 101</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>AEPH 112</td>
<td>4</td>
<td>Introductory Physics 1</td>
</tr>
<tr>
<td>AGRI 195</td>
<td>.5</td>
<td>Freshman Seminar 1</td>
</tr>
</tbody>
</table>

Required Courses - Winter (12.5 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AECH 111</td>
<td>4</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>AEMA 102</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>AEPH 114</td>
<td>4</td>
<td>Introductory Physics 2</td>
</tr>
<tr>
<td>AGRI 196</td>
<td>.5</td>
<td>Freshman Seminar 2</td>
</tr>
</tbody>
</table>

Elective - Winter (3 credits)

2.7.1.4 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) - Freshman Program (30 credits)

If you are entering university for the first time from a high school system (outside of the Quebec CEGEP system) you will be required to complete a Freshman year of at least 30 credits as listed below.

Normally, students registered in the Faculty of Agricultural and Environmental Sciences Freshman program may take a maximum of 8 credits outside the Faculty offerings to meet the requirements of the program. Permission to exceed this limit must be received from the Associate Dean (Student Affairs) prior to registration.
Students require a minimum 2.50 CGPA in order to progress into Year 1 of the Dietetics program.

Note: If you are not certain that you have adequate math and/or physics skills to commence the Freshman year, you may wish to take preparatory courses prior to the normal Fall semester. You are encouraged to discuss your potential need with your academic adviser. Mathematical skill level will be determined during the first week of classes. Your freshman adviser may recommend that you register for an additional weekly Pre-calculus Lab, of one credit, which may be applied towards the required credits of the degree program.

Freshman Adviser: Dr. Alice Cherestes
Macdonald-Stewart Building, Room 1-023
Telephone: 514-398-7980

**Required Courses - Fall (14.5 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEBI 120</td>
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<td>General Biology</td>
</tr>
<tr>
<td>AECH 110</td>
<td>4</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>AEMA 101</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>AEPH 112</td>
<td>4</td>
<td>Introductory Physics 1</td>
</tr>
<tr>
<td>AGRI 195</td>
<td>.5</td>
<td>Freshman Seminar 1</td>
</tr>
</tbody>
</table>

**Required Courses - Winter (15.5 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEBI 122</td>
<td>3</td>
<td>Cell Biology</td>
</tr>
<tr>
<td>AEMA 102</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>AEPH 114</td>
<td>4</td>
<td>Introductory Physics 2</td>
</tr>
<tr>
<td>AGRI 196</td>
<td>.5</td>
<td>Freshman Seminar 2</td>
</tr>
<tr>
<td>FDSC 230</td>
<td>4</td>
<td>Organic Chemistry</td>
</tr>
</tbody>
</table>

**Concurrent Bachelor of Science Food Science (B.Sc. (F.Sc.)) and Bachelor of Science Nutritional Sciences (B.Sc. (Nutr.Sc.)) - Freshman Program (Concurrent) (30 credits)**

These freshman requirements apply to students in the Concurrent Bachelor of Science Food Science (B.Sc. (F.Sc.)) and Bachelor of Science Nutritional Sciences (B.Sc. (Nutr.Sc.)) degree program.

If you are entering university for the first time from a high school system (outside of the Quebec CEGEP system), you will be required to complete a Freshman year of at least 30 credits as listed below.

Normally, students registered in the Faculty of Agricultural and Environmental Sciences Freshman program may take a maximum of 8 credits outside the Faculty offerings to meet the requirements of the program. Permission to exceed this limit must be received from the Associate Dean (Student Affairs) prior to registration.

Note: If you are not certain that you have adequate math and/or physics skills to commence the Freshman year, you may wish to take preparatory courses prior to the normal Fall semester. You are encouraged to discuss your potential need with your academic adviser. Mathematical skill level will be determined during the first week of classes. Your freshman adviser may recommend that you register for an additional weekly Pre-calculus Lab, of one credit, which may be applied towards the required credits of the degree program.

Freshman Adviser: Dr. Alice Cherestes
Macdonald-Stewart Building, Room 1-023
Telephone: 514-398-7980

**Required Courses - Fall (14.5 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEBI 120</td>
<td>3</td>
<td>General Biology</td>
</tr>
<tr>
<td>AECH 110</td>
<td>4</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>AEMA 101</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>AEPH 112</td>
<td>4</td>
<td>Introductory Physics 1</td>
</tr>
<tr>
<td>AGRI 195</td>
<td>.5</td>
<td>Freshman Seminar 1</td>
</tr>
</tbody>
</table>

**Required Courses - Winter (15.5 credits)**
2.7.2 Bachelor of Science (Agricultural and Environmental Sciences) – B.Sc.(Ag.Env.Sc.)

2.7.2.1 General rules for the following B.Sc.(Ag.Env.Sc.) programs

Students register in one major and at least one specialization. They may design their own program by choosing one of the four majors and at least one of the 20 specializations. By choosing two different specializations, students have the option of developing their own interdisciplinary interests. The multidisciplinary specializations are designed for those interested in broad training.

All the required and complementary courses for the major must be completed in full. Within each specialization, at least 18 credits must be unique; that is, they only count for that specialization and do not overlap with either the major or a second specialization. At least 54 credits of the 90 credits required for the degree (120 for students admitted to the Freshman year) must be from 300-level courses or higher; of this at least 12 credits must be from 400-level courses or higher.

Note: Below the program description for each major is a suggested list of specializations that complement the major.

Majors:
- Agricultural Economics
- Agro-environmental Sciences
- Environmental Biology
- International Agriculture and Food Systems
- Life Sciences (Biological and Agricultural)
- Major in Environment (see McGill School of Environment > Major in Environment – B.Sc.(Ag.Env.Sc.) and B.Sc.)

Specializations:
- Agribusiness, section 2.7.2.7.2: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Agribusiness (24 credits)
- Agriculture and Food Systems (Multidisciplinary), section 2.7.2.7.3: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Agriculture and Food Systems (Multidisciplinary) (24 credits)
- Animal Biology, section 2.7.2.7.4: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Animal Biology (24 credits)
- Animal Health and Disease, section 2.7.2.7.5: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Animal Health and Disease (24 credits)
- Animal Production, section 2.7.2.7.6: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Animal Production (24 credits)
- Applied Ecosystem Sciences, section 2.7.2.7.7: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Applied Ecosystem Sciences (24 credits)
- Ecological Agriculture, section 2.7.2.7.8: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Ecological Agriculture (24 credits)
- Entomology, section 2.7.2.7.9: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Entomology (24 credits)
- Environmental Biology (Multidisciplinary), section 2.7.2.7.10: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Environmental Biology (Multidisciplinary) (24 credits)
- Environmental Economics, section 2.7.2.7.11: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Environmental Economics (24 credits)
- Health and Nutrition, section 2.7.2.7.12: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Health and Nutrition (24 credits)
- International Agriculture, section 2.7.2.7.13: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – International Agriculture (24 credits)
- International Development, section 2.7.2.7.14: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - International Development (IAFS) (24 credits) This specialization is closed to newly admitted students.
- Life Sciences (Multidisciplinary), section 2.7.2.7.15: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Life Sciences (Multidisciplinary) (24 credits)
- Microbiology and Molecular Biotechnology, section 2.7.2.7.16: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Microbiology and Molecular Biotechnology (24 credits)
- Plant Biology, section 2.7.2.7.17: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Plant Biology (24 credits)
Plant Production, section 2.7.2.7.18: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Plant Production (24 credits)

Professional Agrology, section 2.7.2.7.19: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Professional Agrology (21 credits)

Soil and Water Resources, section 2.7.2.7.20: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Soil and Water Resources (24 credits)

Wildlife Biology, section 2.7.2.7.21: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Wildlife Biology (24 credits)

2.7.2.2 B.Sc.(Ag.Env.Sc.) – Agricultural Economics Major

Program Director
Professor John Henning
Macdonald-Stewart Building, Room 3-038
Telephone: 514-398-7826

2.7.2.2.1 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Major Agricultural Economics (42 credits)

Program Prerequisites
Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements", in this publication for prerequisites and minimum credit requirements.

Required Courses (33 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGEC 200</td>
<td>3</td>
<td>Principles of Microeconomics</td>
</tr>
<tr>
<td>AGEC 201</td>
<td>3</td>
<td>Principles of Macroeconomics</td>
</tr>
<tr>
<td>AGEC 231</td>
<td>3</td>
<td>Economic Systems of Agriculture</td>
</tr>
<tr>
<td>AGEC 320</td>
<td>3</td>
<td>Intermediate Microeconomic Theory</td>
</tr>
<tr>
<td>AGEC 330</td>
<td>3</td>
<td>Agriculture and Food Markets</td>
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<tr>
<td>AGEC 333</td>
<td>3</td>
<td>Resource Economics</td>
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<tr>
<td>AGEC 425</td>
<td>3</td>
<td>Applied Econometrics</td>
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<tr>
<td>AGEC 430</td>
<td>3</td>
<td>Agriculture, Food and Resource Policy</td>
</tr>
<tr>
<td>AGEC 442</td>
<td>3</td>
<td>Economics of International Agricultural Development</td>
</tr>
<tr>
<td>AGEC 491</td>
<td>3</td>
<td>Research &amp; Methodology</td>
</tr>
<tr>
<td>ENVB 210</td>
<td>3</td>
<td>The Biophysical Environment</td>
</tr>
</tbody>
</table>

Complementary Courses (9 credits)
With the approval of the Academic Adviser, one introductory course in each of the following areas:
Accounting
Statistics
Written/Oral Communication

Specialization (21 - 24 credits)
Specializations designed to be taken with the Agricultural Economics Major:
- Agribusiness (24 credits)
- Environmental Economics (24 credits)
- Professional Agrology (21 credits)

Note: For a complete list of specializations offered for students in the Bachelor of Science in Agricultural and Environmental Sciences, please refer to Academic Programs > Bachelor of Science (Agricultural and Environmental Sciences) - B.Sc.(Ag.Env.Sc.) > Specializations, in this publication.

Electives
To meet the minimum credit requirement for the degree.
2.7.2.3 B.Sc.(Ag.Env.Sc.) – Agro-Environmental Sciences Major

Program Director: Professor Roger I. Cue
Academic Adviser: Dr. Julie Major
Raymond Building, Room 2-021c
Telephone: 514-398-8380

This Major is focused on the idea that agricultural landscapes are managed ecosystems, and that humans engaged in agriculture must maintain the highest possible environmental standards while providing food and other bioproducts to the marketplace. The Major core focuses on the basic and applied biology of cultivated plants, domestic animals, arable soils, and the economics of agriculture. Students then choose one or two specializations in these or connected disciplines that reflect their interests and career goals.

The program has a strong field component that includes hands-on laboratories, visits to agricultural enterprises, and opportunities for internships. Classes and laboratories exploit the unique setting and facilities of the Macdonald Campus and Farm, which is a fully functioning farm in an urban setting that exemplifies many of the issues at the forefront of modern agricultural production. Graduates of this program are eligible to become members of the Ordre des agronomes du Québec.

Program Prerequisites
Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements" in this publication for prerequisites and minimum credit requirements.

Required Courses (36 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
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<tbody>
<tr>
<td>AEBS 210</td>
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<td>Organisms 1</td>
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<td>AEBS 205</td>
<td>3</td>
<td>Science Literacy</td>
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<td>AEBS 310</td>
<td>3</td>
<td>Statistical Methods 1</td>
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<td>AGEB 200</td>
<td>3</td>
<td>Principles of Microeconomics</td>
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<td>AGEB 231</td>
<td>3</td>
<td>Economic Systems of Agriculture</td>
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<tr>
<td>AGEB 215</td>
<td>3</td>
<td>Agro-Ecosystem Field Course</td>
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<tr>
<td>ANSC 250</td>
<td>3</td>
<td>Principles of Animal Science</td>
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<tr>
<td>ENVB 210</td>
<td>3</td>
<td>The Biophysical Environment</td>
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<tr>
<td>LSCI 204</td>
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<td>Genetics</td>
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<td>LSCI 211</td>
<td>3</td>
<td>Biochemistry 1</td>
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<tr>
<td>LSCI 230</td>
<td>3</td>
<td>Introductory Microbiology</td>
</tr>
<tr>
<td>SOIL 315</td>
<td>3</td>
<td>Soil Fertility and Fertilizer Use</td>
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</table>

Complementary Courses (6 credits)

6 credits of complementary courses selected as follows:

One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
<th>Title</th>
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<tbody>
<tr>
<td>PLNT 300</td>
<td>3</td>
<td>Cropping Systems</td>
</tr>
<tr>
<td>PLNT 302</td>
<td>3</td>
<td>Forage Crops and Pastures</td>
</tr>
</tbody>
</table>

One of:
Specialization

Choose at least one specialization of 18-24 credits.

Specializations designed to be taken with the Agro-Environmental Sciences Major:
- Animal Production
- Ecological Agriculture
- Plant Production
- *Professional Agrology
- Soil and Water Resources

* Membership to the OAQ requires students successfully complete one of the above specializations in addition to the Professional Agrology Specialization.

Electives

To meet the minimum credit requirement for the degree.

Revision, August 2011. End of revision.

2.7.2.4 B.Sc.(Ag.Env.Sc.) – Environmental Biology Major

Program Director: Professor Chris Buddle
Academic Adviser: Dr. Julie Major
Raymond Building, Room 2-021c
Telephone: 514-398-8380

2.7.2.4.1 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Major Environmental Biology (42 credits)

Revision, August 2011. Start of revision.

The Environmental Biology Major is about the biology, diversity, and ecology of a broad range of organisms, from plant and vertebrate animals to insects, fungi, and microbes. This Major places a strong emphasis on the ecosystems that species inhabit and the constraints imposed by the physical environment and by environmental change. Environmental Biology has significant field components worked into the course sets, and through this experiential learning, biological diversity, and the ways that species interact with their physical environment in a variety of ecosystems will be studied. The Major makes full use of the unique physical setting and faculty expertise of McGill’s Macdonald campus to train students to become ecologists, taxonomists, field biologists, and ecosystem scientists.

Program Director: Professor Christopher Buddle
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380

Program Prerequisites

Please refer to "Faculty Information and Regulations" > "Minimum Credit Requirements", in this publication for information on prerequisites and minimum credit requirements.

Required Courses (30 credits)

<table>
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<tr>
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<th>Course Title</th>
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<td>Organisms 1</td>
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<td>AEBI 211</td>
<td>3</td>
<td>Organisms 2</td>
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<tr>
<td>AEBI 212</td>
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<td>Evolution and Phylogeny</td>
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<tr>
<td>AEHM 205</td>
<td>3</td>
<td>Science Literacy</td>
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<td>AEMA 310</td>
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<td>Statistical Methods 1</td>
</tr>
<tr>
<td>ENVB 210</td>
<td>3</td>
<td>The Biophysical Environment</td>
</tr>
<tr>
<td>ENVB 222</td>
<td>3</td>
<td>St. Lawrence Ecosystems</td>
</tr>
<tr>
<td>ENVB 410</td>
<td>3</td>
<td>Ecosystem Ecology</td>
</tr>
</tbody>
</table>

FACULTY OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES
Complementary Courses (12 credits)

12 credits of complementary courses selected from:

- ENTO 340 (3) Field Entomology
- ENVB 301 (3) Meteorology
- ENVB 305 (3) Population & Community Ecology
- ENVB 313 (3) Phylogeny and Biogeography
- ENVB 315 (3) Science of Inland Waters
- ENVB 430 (3) GIS for Natural Resource Management
- ENVB 437 (3) Assessing Environmental Impact
- ENVB 497 (3) Research Project 1
- ENVB 498 (3) Research Project 2
- ENVB 506 (3) Quantitative Methods in Ecology
- ENVR 203 (3) Knowledge, Ethics and Environment
- LSCI 230 (3) Introductory Microbiology
- LSCI 451 (3) Research Project 1
- MICR 331 (3) Microbial Ecology
- PLNT 304 (3) Biology of Fungi
- PLNT 358 (3) Flowering Plant Diversity
- SOIL 300 (3) Geosystems
- SOIL 326 (3) Soils in a Changing Environment
- WILD 307 (3) Natural History of Vertebrates

Specialization

At least one specialization of 18-24 credits
Specializations designed to be taken with the Environmental Biology Major:
- Applied Ecosystem Sciences
- Environmental Biology (Multidisciplinary)
- Plant Biology
- Wildlife Biology

Note: For a complete list of specializations offered for students in the Bachelor of Science in Agricultural and Environmental Sciences, refer to "Academic Programs > "Bachelor of Science (Agricultural and Environmental Sciences) - B.Sc.(Ag.Env.Sc.)" > "Specializations", in this publication. Consult the Academic Adviser for approval of specializations other than those listed above.

Electives

To meet the minimum credit requirement for the degree.
This program is directed at students who seek conceptual understanding of the scope of and inter-relationships among the environmental, economic, and socio-cultural factors that shape the nature of developing country food systems as well as scientific competence in the ways in which agriculture can help define sustainable solutions to critical problems defined by food insecurity, malnutrition, poverty, and ecological health. Students will be given general preparation sufficient for participation in project management and policy development together with a foundation adequate both for working alongside a range of development specialists and for subsequent acquisition of specific expertise in components of agricultural and food science. The program couples a common core of scientific and development-related courses and allows students to seek further depth in development-related courses in either the social sciences or natural sciences.

Program Director: Professor Humberto Monardes

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

Required Courses (15 credits)

- AEMA 310 (3) Statistical Methods 1
- AGEC 200 (3) Principles of Microeconomics
- AGRI 411 (3) Global Issues on Development, Food and Agriculture
- AGRI 493 (3) International Project Management
- INTD 200 (3) Introduction to International Development

Complementary Courses (27 credits)

Complementary Course A (3 credits)
One of:
- AGRI 490 (3) Agri-Food Industry Project
- AGRI 499 (3) Agricultural Development Internship

Complementary Courses B (9 credits)

- AEIB 210 (3) Organisms 1
- ANSC 250 (3) Principles of Animal Science
- ENVB 210 (3) The Biophysical Environment
- FDSC 200 (3) Introduction to Food Science

Streams

Choose either the Natural Science or Social Science stream (9 credits).

Natural Science Stream

Complementary Course C1.1 (3 credits)
- LSCI 211 (3) Biochemistry 1

Complementary Course C1.2 (3 credits)
Choose one of:

LSCI 202 (3) Molecular Cell Biology
LSCI 204 (3) Genetics

Complementary Course C1.3 (3 credits)
Choose one of:

ANSC 234 (3) Biochemistry 2
LSCI 230 (3) Introductory Microbiology

Social Science Stream

Complementary Course C2.1 (3 credits)
Choose one of:

AGEC 430 (3) Agriculture, Food and Resource Policy
AGEC 442 (3) Economics of International Agricultural Development

Choose two of the following three complementary course sets (6 credits):

Complementary Courses C2.2 (3 credits)
Choose one of:

GEOG 205 (3) Global Change: Past, Present and Future
GEOG 210 (3) Global Places and Peoples
GEOG 216 (3) Geography of the World Economy
NRSC 221 (3) Environment and Health

Complementary Course C2.3 (3 credits)
Choose one of:

ANTH 202 (3) Socio-Cultural Anthropology
ANTH 204 (3) Anthropology of Meaning
ANTH 206 (3) Environment and Culture

Complementary Course C2.4 (3 credits)
Choose one of:

POLI 243 (3) International Politics of Economic Relations
SOCI 210 (3) Sociological Perspectives
SOCI 225 (3) Medicine and Health in Modern Society
SOCI 234 (3) Population and Society
SOCI 254 (3) Development and Underdevelopment

Choose 6 credits from one of the following International Development Studies domains:
Economic Development and Living Standards
Environment Agricultural Resources
Specialization (18-24 credits)

Students must also complete at least one specialization of 18-24 credits. Specializations suggested to be taken with the International Agriculture and Food Systems Major:

- Agriculture and Food Systems (Multidisciplinary)
- Ecological Agriculture
- Health and Nutrition
- International Agriculture

Note: For a complete list of specializations offered for students in the Bachelor of Science in Agricultural and Environmental Sciences, refer to "Academic Programs" > "Bachelor of Science (Agricultural and Environmental Sciences) - B.Sc.(Ag.Env.Sc.)" > "Specializations", in this publication. Consult the Academic Adviser for approval of specializations other than those listed above.

Electives

To meet the minimum credit requirement for the degree.

Revision, August 2011. End of revision.

2.7.2.6  B.Sc.(Ag.Env.Sc.) – Life Sciences (Biological and Agricultural) Major

Program Director: Professor Brian Driscoll
Macdonald-Stewart Building, Room 3-035
Telephone: 514-398-7887

Academic Adviser: Dr. Julie Major
Raymond Building, Room 2-021c
Telephone: 514-398-8380

2.7.2.6.1 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Major Life Sciences (Biological and Agricultural) (42 credits)

Revision, August 2011. Start of revision.

The Life Sciences (Biological and Agricultural) Major provides a strong foundation in the basic biological sciences. It will prepare graduates for careers in the agricultural, environmental, health, and biotechnological fields. Graduates with high academic achievement may go on to postgraduate studies in research, or professional programs in the biological, veterinary, medical, and health sciences fields.

Program Director: Professor Brian Driscoll
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380

Program Prerequisites

Please refer to "Faculty Information and Regulations" > "Minimum Credit Requirements", in this publication for prerequisites and minimum credit requirements.

Required Courses (27 credits)

* Other appropriate Statistics courses may be approved as substitutes by the Program Director.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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<tr>
<td>AEBI 210</td>
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<td>Organisms 1</td>
</tr>
<tr>
<td>AEBI 211</td>
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<td>AEBI 212</td>
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<td>AEMA 310*</td>
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<td>LSCI 204</td>
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<td>Biochemistry 1</td>
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<tr>
<td>LSCI 230</td>
<td>3</td>
<td>Introductory Microbiology</td>
</tr>
</tbody>
</table>
Complementary Courses (15 credits)

15 credits of the complementary courses selected from:

- AEHM 330 (3) Academic and Scientific Writing
- ANSC 234 (3) Biochemistry 2
- ANSC 250 (3) Principles of Animal Science
- ANSC 312 (3) Animal Health and Disease
- ANSC 323 (3) Mammalian Physiology
- ANSC 324 (3) Developmental Biology and Reproduction
- ANSC 326 (3) Fundamentals of Population Genetics
- ANSC 330 (3) Fundamentals of Nutrition
- ANSC 400 (3) Eukaryotic Cells and Viruses
- ANSC 420 (3) Animal Biotechnology
- BINF 301 (3) Introduction to Bioinformatics
- BINF 511 (3) Bioinformatics for Genomics
- BTEC 306 (3) Experiments in Biotechnology
- ENVB 210 (3) The Biophysical Environment
- ENVB 222 (3) St. Lawrence Ecosystems
- LSCI 451 (3) Research Project 1
- LSCI 452 (3) Research Project 2
- MICR 331 (3) Microbial Ecology
- MICR 338 (3) Bacterial Molecular Genetics
- MICR 341 (3) Mechanisms of Pathogenicity
- MICR 450 (3) Environmental Microbiology
- NRSC 333 (3) Pollution and Bioremediation
- PARA 410 (3) Environment and Infection
- PLNT 304 (3) Biology of Fungi
- PLNT 353 (3) Plant Structure and Function
- PLNT 424 (3) Cellular Regulation
- PLNT 426 (3) Plant Ecophysiology
- PLNT 435 (3) Plant Breeding
- WILD 375 (3) Issues: Environmental Sciences
- WILD 424 (3) Parasitology

Specialization

At least one specialization of 18-24 credits from:

Specializations designed to be taken with the Life Sciences (Biological and Agricultural) Major:
- Animal Biology
- Animal Health and Disease
- Life Sciences (Multidisciplinary)
- Microbiology and Molecular Biotechnology

Note: For a complete list of specializations offered for students in the Bachelor of Science in Agricultural and Environmental Sciences, please refer to "Academic Programs" > "Bachelor of Science (Agricultural and Environmental Sciences) - B.Sc.(Ag.Env.Sc.)" > "Specializations", in this publication.

Electives
To meet the minimum credit requirement for the degree.

Revision, August 2011. End of revision.

2.7.2.7 Specializations
2.7.2.7.1 B.Sc.(Ag.Env.Sc.) – Specializations to be taken with one of the B.Sc.(Ag.Env.Sc.) majors

Each specialization consists of 24 credits of courses (required and complementary) that provide a coherent package designed to prepare students for a future in a given discipline. Students will select at least one specialization. However, students wishing to broaden their training have the option of choosing to do two. Although the list of suggested specializations appears under each major in the programs section, students interested in other specializations should consult with their academic adviser/specialization coordinator.

2.7.2.7.2 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Agribusiness (24 credits)

The development of commercial agriculture relies on a large supporting sector of manufacturing and service companies involved in the supply of inputs to farming and the transportation, processing, and marketing of agricultural and food products.

This 24-credit specialization includes courses in agricultural sciences, agribusiness, and courses at the Desautels Faculty of Management.

This specialization is limited to students in the Major in Agricultural Economics.

Specialization Adviser: Professor John Henning
Macdonald-Stewart Building, Room 3-038
Telephone: 514-398-7826

Required Courses (15 credits)

- AEBI 210 (3) Organisms 1
- AGE 242 (3) Management Theories and Practices
- AGE 332 (3) Farm Management and Finance
- AGE 450 (3) Agriculture Business Management
- ANSC 250 (3) Principles of Animal Science

Complementary Courses (9 credits)

9 credits chosen from the following list:

- ACCT 361 (3) Intermediate Management Accounting 1
- AGRI 310 (3) Internship in Agriculture/Environment
- BUSA 364 (3) Business Law 1
- MGCR 341 (3) Finance 1
- MGCR 352 (3) Marketing Management 1
- MGCR 382 (3) International Business
- MGSC 373 (3) Operations Research 1
- ORGB 321 (3) Leadership

2.7.2.7.3 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Agriculture and Food Systems (Multidisciplinary) (24 credits)

Revision, August 2011. Start of revision.

This flexible specialization offers a balance between food systems and consumption and agricultural production. It provides students with an opportunity to select courses in the economics, nutrition, and ethical and environmental implications of food systems and in the fundamentals of animal and plant production. The specialization is designed for students in the International Agriculture and Food Systems Major who have broad interests in international agriculture and development.

To complete the specialization, students select 12 credits from the block of complementary courses related to Food Systems and Consumption and 12 credits from the block of complementary courses related to Agriculture Production from the lists in the table below.

Specialization Coordinator: Professor Vijaya Raghavan
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380
Complementary Courses (24 credits)

24 credits of complementary courses are selected as follows:

12 credits - Food Systems and Consumption

12 credits - Agricultural Production

Food Systems and Consumption

12 credits from:

- AGEC 201 (3) Principles of Macroeconomics
- AGEC 231 (3) Economic Systems of Agriculture
- AGEC 242 (3) Management Theories and Practices
- AGEC 320 (3) Intermediate Microeconomic Theory
- AGEC 330 (3) Agriculture and Food Markets
- AGEC 333 (3) Resource Economics
- AGEC 343 (3) Accounting and Cost Control
- AGEC 430 (3) Agriculture, Food and Resource Policy
- AGEC 442 (3) Economics of International Agricultural Development
- ANSC 323 (3) Mammalian Physiology
- ANSC 424 (3) Metabolic Endocrinology
- ANSC 551 (3) Carbohydrate and Lipid Metabolism
- ANSC 552 (3) Protein Metabolism and Nutrition
- ECON 225 (3) Economics of the Environment
- ECON 326 (3) Ecological Economics
- FDSC 251 (3) Food Chemistry 1
- FDSC 319 (3) Food Commodities
- FDSC 330 (3) Food Processing
- LSCI 202 (3) Molecular Cell Biology
- LSCI 230 (3) Introductory Microbiology
- MICR 331 (3) Microbial Ecology
- MICR 341 (3) Mechanisms of Pathogenicity
- MICR 450 (3) Environmental Microbiology
- NRSC 221 (3) Environment and Health
- NRSC 512 (3) Water: Ethics, Law and Policy
- NUTR 337 (3) Nutrition Through Life
- NUTR 403 (3) Nutrition in Society
- NUTR 420 (3) Toxicology and Health Risks
- NUTR 501 (3) Nutrition in Developing Countries
- NUTR 512 (3) Herbs, Foods and Phytochemicals
- PARA 410 (3) Environment and Infection
- PARA 438 (3) Immunology
- PARA 515 (3) Water, Health and Sanitation
- WILD 424 (3) Parasitology

Agricultural Production
Revision, August 2011. End of revision.

2.7.2.7.4 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Animal Biology (24 credits)

Revision, August 2011. Start of revision.

The specialization in Animal Biology is intended for students who wish to further their studies in the basic biology of large mammals and birds. Successful completion of the program should enable students to qualify for application to most veterinary colleges in North America, to study in a variety of postgraduate biology programs, and to work in many laboratory settings.

Specialization Coordinator: Professor Roger Cue
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380

Required Courses (15 credits)

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<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
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<tr>
<td>ANSC 312</td>
<td>3</td>
<td>Animal Health and Disease</td>
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<td>ANSC 323</td>
<td>3</td>
<td>Mammalian Physiology</td>
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<td>ANSC 324</td>
<td>3</td>
<td>Developmental Biology and Reproduction</td>
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<td>ANSC 420</td>
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<td>Animal Biotechnology</td>
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<td>PARA 438</td>
<td>3</td>
<td>Immunology</td>
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Complementary Courses (9 credits)

9 credits selected from:

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<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
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<td>Comparative Anatomy</td>
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<td>ANSC 326</td>
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<td>Fundamentals of Population Genetics</td>
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<td>ANSC 330</td>
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<td>Fundamentals of Nutrition</td>
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<td>ANSC 400</td>
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<td>Eukaryotic Cells and Viruses</td>
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</tbody>
</table>
**Revision, August 2011. End of revision.**

### Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Animal Health and Disease (24 credits)

#### Revision, August 2011. Start of revision.

This specialization is offered for students wishing to understand general animal physiology and function, the susceptibility of animals to various diseases, methods for limiting and controlling potential outbreaks, and the resulting implications for the animal, the consumer and the environment. It is an ideal choice for students interested in the care of animals, or in working in laboratories where diseases are being researched.

Specialization Coordinator: Professor Sarah Kimmins

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

**Required Courses (15 credits)**

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<td>ANSC 323</td>
<td>Mammalian Physiology</td>
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<td>ANSC 424</td>
<td>Metabolic Endocrinology</td>
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<td>MICR 341</td>
<td>Mechanisms of Pathogenicity</td>
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<td>PARA 438</td>
<td>Immunology</td>
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</table>

**Complementary Courses (9 credits)**

9 credits of complementary courses selected from:

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<th>Title</th>
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<td>Fundamentals of Nutrition</td>
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<td>ANSC 350</td>
<td>Food-Borne Pathogens</td>
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<td>PARA 410</td>
<td>Environment and Infection</td>
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<td>WILD 311</td>
<td>Ethology</td>
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<tr>
<td>WILD 424</td>
<td>Parasitology</td>
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</tbody>
</table>

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**Revision, August 2011. End of revision.**

### Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Animal Production (24 credits)

#### Revision, August 2011. Start of revision.

This specialization will be of interest to students who wish to study the improved efficiency of livestock production at the national and international levels. Students are exposed to animal nutrition, physiology, and breeding in a context that respects environmental concerns and animal-welfare issues. When taken in conjunction with the Major Agro-Environmental Sciences and the specialization in Professional Agriculture, it conforms with the eligibility requirements of the Ordre des agronomes du Québec.

Specialization Coordinator: Professor Arif Mustafa

Academic Adviser: Dr. Julie Major

Macdonald-Stewart Building, Room 2-082

Telephone: 514-398-8380

**Required Courses (21 credits)**

<table>
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<td>ANSC 560</td>
<td>Biology of Lactation</td>
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<td>ANSC 565</td>
<td>Applied Information Systems</td>
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<td>LSCI 451</td>
<td>Research Project 1</td>
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</table>
ANSC 301 (3) Principles of Animal Breeding
ANSC 312 (3) Animal Health and Disease
ANSC 323 (3) Mammalian Physiology
ANSC 324 (3) Developmental Biology and Reproduction
ANSC 433 (3) Animal Nutrition
ANSC 451 (3) Dairy and Beef Production Management
ANSC 458 (3) Swine and Poultry Production

**Complementary Course (3 credits)**

One of:

- ANSC 234 (3) Biochemistry 2
- ANSC 330 (3) Fundamentals of Nutrition

**Revision, August 2011. End of revision.**

2.7.2.7 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Applied Ecosystem Sciences (24 credits)

**Revision, August 2011. Start of revision.**

The goal of this specialization is to provide students with an opportunity to further develop their understanding of the ecosystem processes, ecology, and systems thinking necessary to understand, design, and manage our interaction with the environment.

Specialization Coordinator: Professor Elena Bennett
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380

**Required Courses (12 credits)**

- BREE 327 (3) Bio-Environmental Engineering
- ENVB 305 (3) Population & Community Ecology
- ENVB 415 (3) Ecosystem Management
- ENVB 506 (3) Quantitative Methods in Ecology

**Complementary Courses (12 credits)**

12 credits of complementary courses selected as follows:

- 6 credits - Abiotic
- 6 credits - Biotic

6 credits are selected from the Abiotic list below:

- AGRI 435 (3) Soil and Water Quality Management
- BREE 217 (3) Hydrology and Water Resources
- BREE 322 (3) Organic Waste Management
- ENVB 301 (3) Meteorology
- ENVB 430 (3) GIS for Natural Resource Management
- MICR 450 (3) Environmental Microbiology
- SOIL 300 (3) Geosystems
- SOIL 326 (3) Soils in a Changing Environment
- SOIL 510 (3) Environmental Soil Chemistry
6 credits are selected from the Biotic list below:

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<td>Principles of Ecological Agriculture</td>
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<tr>
<td>ENTO 440</td>
<td>3</td>
<td>Insect Diversity</td>
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<tr>
<td>ENVB 315</td>
<td>3</td>
<td>Science of Inland Waters</td>
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<tr>
<td>MICR 331</td>
<td>3</td>
<td>Microbial Ecology</td>
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<td>PLNT 358</td>
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<td>Flowering Plant Diversity</td>
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<tr>
<td>PLNT 426</td>
<td>3</td>
<td>Plant Ecophysiology</td>
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<tr>
<td>PLNT 460</td>
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<td>Plant Ecology</td>
</tr>
<tr>
<td>WILD 307</td>
<td>3</td>
<td>Natural History of Vertebrates</td>
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</table>

**Revision, August 2011. End of revision.**

2.7.2.7.8 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Ecological Agriculture (24 credits)

**Revision, August 2011. Start of revision.**

This specialization focuses on the principles underlying the practice of ecological agriculture. When coupled with the Major in Environmental Biology, agriculture as a managed ecosystem that responds to the laws of community ecology is examined; when combined with the Major Agro-Environmental Sciences and the specialization in Professional Agrology, this specialization focuses more directly on the practice of ecological agriculture and conforms with the eligibility requirements of the Ordre des agronomes du Québec. It is suitable for students wishing to farm and do extension and government work, and those intending to pursue postgraduate work in this field.

Specialization Coordinator: Dr. Caroline Begg
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380

**Required Courses (9 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 215</td>
<td>3</td>
<td>Agro-Ecosystems Field Course</td>
</tr>
<tr>
<td>AGRI 340</td>
<td>3</td>
<td>Principles of Ecological Agriculture</td>
</tr>
<tr>
<td>RELG 270</td>
<td>3</td>
<td>Religious Ethics and the Environment</td>
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</table>

**Complementary Courses (15 credits)**

15 credits of complementary courses selected from:

*Note: Offered in alternate years.

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>AGEC 430</td>
<td>3</td>
<td>Agriculture, Food and Resource Policy</td>
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<tr>
<td>AGRI 310</td>
<td>3</td>
<td>Internship in Agriculture/Environment</td>
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<tr>
<td>AGRI 411</td>
<td>3</td>
<td>Global Issues on Development, Food and Agriculture</td>
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<tr>
<td>AGRI 435</td>
<td>3</td>
<td>Soil and Water Quality Management</td>
</tr>
<tr>
<td>ENTO 352</td>
<td>3</td>
<td>Biocontrol of Pest Insects</td>
</tr>
<tr>
<td>MICR 331</td>
<td>3</td>
<td>Microbial Ecology</td>
</tr>
<tr>
<td>NUTR 512</td>
<td>3</td>
<td>Herbs, Foods and Phytochemicals</td>
</tr>
<tr>
<td>PLNT 302</td>
<td>3</td>
<td>Forage Crops and Pastures</td>
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<td>PLNT 312*</td>
<td>3</td>
<td>Urban Horticulture</td>
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<td>PLNT 426*</td>
<td>3</td>
<td>Plant Ecophysiology</td>
</tr>
<tr>
<td>PLNT 434</td>
<td>3</td>
<td>Weed Biology and Control</td>
</tr>
<tr>
<td>PLNT 460</td>
<td>3</td>
<td>Plant Ecology</td>
</tr>
<tr>
<td>SOIL 326</td>
<td>3</td>
<td>Soils in a Changing Environment</td>
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<tr>
<td>SOIL 335*</td>
<td>3</td>
<td>Soil Ecology and Management</td>
</tr>
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Revision, August 2011. End of revision.

2.7.2.7.9 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Entomology (24 credits)

Revision, August 2011. Start of revision.

This specialization offers students expertise in insect biology, ecology, evolution, and behaviour. Applied entomology is included, as insects are key pests in various ecosystems, and insect pest management is and will continue to be a global priority. Insect taxonomy and systematics will be studied both in the field and in the classroom. Through careful selection of complementary courses, students can learn about the role of insects in various ecosystems, their functional importance, and their role in vectoring human disease.

Specialization Coordinator: Professor Terry Wheeler
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380

Required Courses (9 credits)

- ENTO 330 (3) Insect Biology
- ENTO 352 (3) Biocontrol of Pest Insects
- ENTO 440 (3) Insect Diversity

Complementary Courses (15 credits)

15 credits of complementary courses selected from:

- ENTO 340 (3) Field Entomology
- ENTO 515 (3) Parasitoid Behavioural Ecology
- ENTO 520 (3) Insect Physiology
- ENTO 535 (3) Aquatic Entomology
- ENTO 550 (3) Veterinary and Medical Entomology
- PLNT 434 (3) Weed Biology and Control
- SOIL 335 (3) Soil Ecology and Management
- WILD 424 (3) Parasitology

Revision, August 2011. End of revision.

2.7.2.7.10 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Environmental Biology (Multidisciplinary) (24 credits)

Revision, August 2011. Start of revision.

This is a flexible specialization offering a balance between organisms, their ecology, and ecosystem processes and applications. Biology and ecology of a variety of taxonomic groups and the ways the organisms interact with and affect ecosystem processes will be examined. Students are exposed to ecosystem management and issues related to environmental change. The proposed specialization is designed for students with broad and general interests in environmental biology, but who wish for a strong grounding in organismal biology and ecology and environmental sciences.

Specialization Coordinator: Professor Christopher Buddle
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380

Complementary Courses (24 credits)

24 credits (total) are selected from various categories as follows:

Minimum of 6 credits - Organisms
Minimum of 3 credits - Ecology
Minimum of 6 credits - Ecosystem Processes and Applications

**Organisms**
Minimum of 6 credits from the following:
- BIOL 427 (3) Herpetology
- ENTO 340 (3) Field Entomology
- PLNT 304 (3) Biology of Fungi
- PLNT 358 (3) Flowering Plant Diversity
- WILD 307 (3) Natural History of Vertebrates
- WILD 350 (3) Mammalogy
- WILD 420 (3) Ornithology

**Ecology**
Minimum of 3 credits from the following:
- ENTO 440 (3) Insect Diversity
- ENVB 305 (3) Population & Community Ecology
- ENVB 315 (3) Science of Inland Waters
- ENVB 506 (3) Quantitative Methods in Ecology
- MICR 331 (3) Microbial Ecology
- PLNT 460 (3) Plant Ecology
- SOIL 335 (3) Soil Ecology and Management

**Ecosystem Processes and Applications**
Minimum of 6 credits from the following:
- AGRI 435 (3) Soil and Water Quality Management
- ENVB 301 (3) Meteorology
- ENVB 430 (3) GIS for Natural Resource Management
- ENVB 437 (3) Assessing Environmental Impact
- MICR 450 (3) Environmental Microbiology
- SOIL 300 (3) Geosystems
- SOIL 326 (3) Soils in a Changing Environment
- WILD 375 (3) Issues: Environmental Sciences
- WILD 421 (3) Wildlife Conservation

Revision, August 2011. End of revision.

2.7.2.7.11 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Environmental Economics (24 credits)

This specialization integrates environmental sciences and decision making with the economics of environment and sustainable development. It is designed to prepare students for careers in natural resource management and the analysis of environmental problems and policies.

This specialization is limited to students in the Major Agricultural Economics.

Specialization Adviser: Professor John Henning
Macdonald-Stewart Building, Room 3-038
Telephone: 514-398-7826

**Required Courses (9 credits)**
- ENVB 305 (3) Population & Community Ecology
Complementary Courses (15 credits)

At least 15 credits chosen from the following list:

- AGRI 310 (3) Internship in Agriculture/Environment
- BREE 217 (3) Hydrology and Water Resources
- ECON 225 (3) Economics of the Environment
- ECON 326 (3) Ecological Economics
- ECON 405 (3) Natural Resource Economics
- ENVB 301 (3) Meteorology
- ENVR 203 (3) Knowledge, Ethics and Environment
- MICR 331 (3) Microbial Ecology
- NRSC 333 (3) Pollution and Bioremediation
- WILD 415 (2) Conservation Law
- WILD 421 (3) Wildlife Conservation

2.7.2.7.12 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Health and Nutrition (24 credits)

Revision, August 2011. Start of revision.

This specialization offers students a foundation in nutrition with respect to health and disease. A focus on nutrition and health through the lifespan examines nutrient requirements and their relationship with health and disease prevention. Through careful selection of complementary courses, students can study about health and disease in various contexts ranging from human to animal health.

Specialization Adviser: Professor Linda Wykes
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380

Required Courses (12 credits)

- ANSC 323 (3) Mammalian Physiology
- ANSC 330 (3) Fundamentals of Nutrition
- NUTR 337 (3) Nutrition Through Life
- PARA 438 (3) Immunology

Complementary Courses (12 credits)

12 credits from:

- ANSC 312 (3) Animal Health and Disease
- ANSC 350 (3) Food-Borne Pathogens
- ANSC 424 (3) Metabolic Endocrinology
- ANSC 551 (3) Carbohydrate and Lipid Metabolism
- ANSC 552 (3) Protein Metabolism and Nutrition
- FDSC 213 (3) Analytical Chemistry 1
- FDSC 334 (3) Analysis of Food Toxins and Toxicants
- FDSC 442 (3) Food Microbiology
- NUTR 344 (4) Clinical Nutrition 1
Revision, August 2011. End of revision.

2.7.2.7.13 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – International Agriculture (24 credits)

Revision, August 2011. Start of revision.

This specialization will provide the student with coursework and hands-on experience of techniques and issues related to agriculture in a tropical setting. Theoretical courses on the policies and practice of agriculture in an international context are complemented by participation in one of the international field semesters. Note that there is a selection process for participation in a field semester and that participation entails extra cost. In addition, students should consult the academic adviser for the specialization and carefully review the prerequisites for courses in the field semester and the general requirements for participation, which may be over and above what is required by the student’s major.

Specialization Adviser: Professor Humberto Monardes
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380

Required Courses (6 credits)

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<td>Economics of International Agricultural Development</td>
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<td>AGRI 411</td>
<td>3</td>
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Complementary Courses (18 credits)

18 credits of complementary courses selected as follows:

*3 credits, one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
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<td>3</td>
<td>Global Perspectives on Food</td>
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<td>NUTR 501</td>
<td>3</td>
<td>Nutrition in Developing Countries</td>
</tr>
<tr>
<td>PARA 515</td>
<td>3</td>
<td>Water, Health and Sanitation</td>
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</table>

*15 credits, select one of the McGill Field Study Semesters listed below:

**African Field Study Semester (Winter)**
15 credits selected as follows:

9 credits of courses chosen from the complementary course set offered in the year of participation in the Field Study Semester.

6 credits of required courses as listed below:

<table>
<thead>
<tr>
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<th>Title</th>
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<tbody>
<tr>
<td>GEOG 416</td>
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<td>Africa South of the Sahara</td>
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<tr>
<td>NRSC 405</td>
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<td>Natural History of East Africa</td>
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**Barbados Field Study Semester (Fall)**
15 credits selected as follows:

<table>
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<th>Credits</th>
<th>Title</th>
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<tbody>
<tr>
<td>AGRI 452</td>
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<td>Water Resources in Barbados</td>
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<tr>
<td>AGRI 519</td>
<td>6</td>
<td>Sustainable Development Plans</td>
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</tbody>
</table>
Barbados Interdisciplinary Tropical Studies Field Semester (Summer)
15 credits selected as follows:
AEBI 421 (3) Tropical Horticultural Ecology
AEBI 423 (3) Sustainable Land Use
AEBI 425 (3) Tropical Energy and Food
AEBI 427 (6) Barbados Interdisciplinary Project

Panama Field Study Semester (Winter)
15 credits selected as follows:
9 credits of required courses
BIOL 553 (3) Neotropical Environments
ENVR 451 (6) Research in Panama

6 credits of complementary courses
Choose one of the following sets:
AGRI 550 (3) Sustained Tropical Agriculture
HIST 510 (3) Environmental History of Latin America (Field)

OR
GEOG 404 (3) Environmental Management 2
GEOG 498 (3) Humans in Tropical Environments

Revision, August 2011. End of revision.

2.7.2.14 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - International Development (IAFS) (24 credits)
The program is closed for further admissions. For students currently enrolled in this program, please refer to the 2010-2011 Programs, Courses and University Regulations publication available at: http://www.mcgill.ca/study/2010-2011.

2.7.2.15 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Life Sciences (Multidisciplinary) (24 credits)

Revision, August 2011. Start of revision.

Students taking this specialization have a wide variety of Life Sciences course offerings to choose from to allow them to target their program to their own interests in the field. Course choices are balanced between "fundamentals" and "applications". Depending upon the courses chosen, the resulting program may be relatively specialized or very broad, spanning several disciplines. Such a broad background in Life Sciences will open up employment opportunities in a variety of diverse bioscience industries; students with an appropriate CGPA may proceed to a wide variety of postgraduate programs or professional schools.

Academic Adviser: Professor Brian Driscoll
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380

Complementary Courses (24 credits)
24 credits selected from the following list:
ANSC 312 (3) Animal Health and Disease
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>ANSC 323</td>
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<td>Mammalian Physiology</td>
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<td>ANSC 324</td>
<td>3</td>
<td>Developmental Biology and Reproduction</td>
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<td>ANSC 326</td>
<td>3</td>
<td>Fundamentals of Population Genetics</td>
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<td>ANSC 330</td>
<td>3</td>
<td>Fundamentals of Nutrition</td>
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<tr>
<td>ANSC 350</td>
<td>3</td>
<td>Food-Borne Pathogens</td>
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<tr>
<td>ANSC 400</td>
<td>3</td>
<td>Eukaryotic Cells and Viruses</td>
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<tr>
<td>ANSC 420</td>
<td>3</td>
<td>Animal Biotechnology</td>
</tr>
<tr>
<td>ANSC 424</td>
<td>3</td>
<td>Metabolic Endocrinology</td>
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<td>ANSC 433</td>
<td>3</td>
<td>Animal Nutrition</td>
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<tr>
<td>ANSC 506</td>
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<td>Advanced Animal Biotechnology</td>
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<tr>
<td>ANSC 560</td>
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<td>Biology of Lactation</td>
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<tr>
<td>ANSC 565</td>
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<tr>
<td>BINF 301</td>
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<td>BINF 511</td>
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<tr>
<td>BTEC 306</td>
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<td>Experiments in Biotechnology</td>
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<tr>
<td>BTEC 535</td>
<td>3</td>
<td>Functional Genomics in Model Organisms</td>
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<td>BTEC 555</td>
<td>3</td>
<td>Structural Bioinformatics</td>
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<td>ENTO 330</td>
<td>3</td>
<td>Insect Biology</td>
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<tr>
<td>ENTO 352</td>
<td>3</td>
<td>Biocontrol of Pest Insects</td>
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<tr>
<td>ENTO 440</td>
<td>3</td>
<td>Insect Diversity</td>
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<td>ENTO 535</td>
<td>3</td>
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<td>ENVB 301</td>
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<td>ENVB 313</td>
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<td>ENVB 315</td>
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<td>MICR 450</td>
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<td>Nutrition Through Life</td>
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<td>Herbs, Foods and Phytochemicals</td>
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<td>PARA 410</td>
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<td>PARA 438</td>
<td>3</td>
<td>Immunology</td>
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<td>PARA 515</td>
<td>3</td>
<td>Water, Health and Sanitation</td>
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<td>PLNT 304</td>
<td>3</td>
<td>Biology of Fungi</td>
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<td>PLNT 353</td>
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<td>Plant Structure and Function</td>
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<td>PLNT 358</td>
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<td>Flowering Plant Diversity</td>
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<tr>
<td>PLNT 424</td>
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<td>Cellular Regulation</td>
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Revision, August 2011. Start of revision.

2.7.2.7.16 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Microbiology and Molecular Biotechnology (24 credits)

Revision, August 2011. Start of revision.

Students following this specialization receive education and training in fundamental principles and applied aspects of microbiology. Complementary courses allow students to focus on basic microbial sciences or applied areas such as biotechnology. Successful graduates may work in university, government, and industrial research laboratories, in the pharmaceutical, fermentation, and food industries, and with an appropriate CGPA proceed to postgraduate studies or professional biomedical schools.

Specialization Coordinator: Professor Brian Driscoll
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380

Required Courses (18 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tr>
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<td>MICR 331</td>
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<td>Microbial Ecology</td>
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<td>3</td>
<td>Bacterial Molecular Genetics</td>
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<td>MICR 341</td>
<td>3</td>
<td>Mechanisms of Pathogenicity</td>
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<td>MICR 450</td>
<td>3</td>
<td>Environmental Microbiology</td>
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<tr>
<td>PARA 438</td>
<td>3</td>
<td>Immunology</td>
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Complementary Courses and Suggested Electives (6 credits)

<table>
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<tr>
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<td>ANSC 400</td>
<td>3</td>
<td>Eukaryotic Cells and Viruses</td>
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<td>ANSC 420</td>
<td>3</td>
<td>Animal Biotechnology</td>
</tr>
<tr>
<td>BINF 301</td>
<td>3</td>
<td>Introduction to Bioinformatics</td>
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<tr>
<td>BTEC 501</td>
<td>3</td>
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<td>Functional Genomics in Model Organisms</td>
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<td>3</td>
<td>Structural Bioinformatics</td>
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<td>FDSC 442</td>
<td>3</td>
<td>Food Microbiology</td>
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<td>MIMM 324</td>
<td>3</td>
<td>Fundamental Virology</td>
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<td>NRSC 333</td>
<td>3</td>
<td>Pollution and Bioremediation</td>
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<tr>
<td>PLNT 304</td>
<td>3</td>
<td>Biology of Fungi</td>
</tr>
<tr>
<td>PLNT 424</td>
<td>3</td>
<td>Cellular Regulation</td>
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<td>WILD 424</td>
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<td>Parasitology</td>
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</tbody>
</table>

Revision, August 2011. End of revision.

2.7.2.7.17 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Plant Biology (24 credits)

Revision, August 2011. Start of revision.

<table>
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<td>Plant Ecophysiology</td>
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<td>Weed Biology and Control</td>
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<td>PLNT 435</td>
<td>3</td>
<td>Plant Breeding</td>
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<td>PLNT 460</td>
<td>3</td>
<td>Plant Ecology</td>
</tr>
<tr>
<td>SOIL 335</td>
<td>3</td>
<td>Soil Ecology and Management</td>
</tr>
<tr>
<td>WILD 424</td>
<td>3</td>
<td>Parasitology</td>
</tr>
</tbody>
</table>
This specialization emphasizes the study of plants from the cellular to the organismal level. The structure, physiology, development, evolution, and ecology of plants will be studied. Most courses offer laboratory classes that expand on the lecture material and introduce students to the latest techniques in plant biology. Many laboratory exercises use the excellent research and field facilities at the Morgan Arboretum, McGill Herbarium, Emile A. Lods Agronomy Research Centre, the Horticultural Centre and the Plant Science greenhouses as well as McGill field stations. Students may undertake a research project under the guidance of a member of the Plant Science Department as part of their studies. Graduates with the specialization may continue in post-graduate study or work in the fields of botany, mycology, molecular biology, ecology, conservation, or environmental science.

Specialization Coordinator: Professor Marcia Waterway
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380

Required Courses (12 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<td>PLNT 358</td>
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<td>Flowering Plant Diversity</td>
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<td>PLNT 426</td>
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<td>Plant Ecophysiology</td>
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<td>PLNT 460</td>
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<td>Plant Ecology</td>
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</table>

Complementary Courses (12 credits)
12 credits of complementary courses selected from:

<table>
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<th>Course Code</th>
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<th>Course Title</th>
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<tbody>
<tr>
<td>BINF 511</td>
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<td>Bioinformatics for Genomics</td>
</tr>
<tr>
<td>ENVB 313</td>
<td>3</td>
<td>Phylogeny and Biogeography</td>
</tr>
<tr>
<td>NUTR 512</td>
<td>3</td>
<td>Herbs, Foods and Phytochemicals</td>
</tr>
<tr>
<td>PLNT 203</td>
<td>3</td>
<td>Economic Botany</td>
</tr>
<tr>
<td>PLNT 304</td>
<td>3</td>
<td>Biology of Fungi</td>
</tr>
<tr>
<td>PLNT 305</td>
<td>3</td>
<td>Plant Pathology</td>
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<tr>
<td>PLNT 310</td>
<td>3</td>
<td>Plant Propagation</td>
</tr>
<tr>
<td>PLNT 424</td>
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<td>Cellular Regulation</td>
</tr>
<tr>
<td>PLNT 435</td>
<td>3</td>
<td>Plant Breeding</td>
</tr>
<tr>
<td>PLNT 451</td>
<td>3</td>
<td>Special Topics: Plant Science 2</td>
</tr>
<tr>
<td>PLNT 489</td>
<td>1</td>
<td>Project Planning and Proposal</td>
</tr>
<tr>
<td>PLNT 490</td>
<td>2</td>
<td>Research Project</td>
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</table>

Revision, August 2011. End of revision.

2.7.2.7.18 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Plant Production (24 credits)

Revision, August 2011. Start of revision.

The goal of this specialization is to give students an excellent background in the knowledge and skills relating to the biology and physiology, breeding, propagation, and management of domesticated plants. The plant industry, in both rural and urban settings, is a sector of growing importance to Canadian and global economies. Graduates may find employment directly with plants in horticulture or in field crop development, production, and management; or in government services, extension, teaching, consulting, or postgraduate studies. When taken in conjunction with the Major Agro-Environmental Sciences and the specialization in Professional Agrology, this specialization conforms with the eligibility requirements for the Ordre des agronomes du Québec.

Specialization Coordinator: Professor Jaswinder Singh
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380

Required Courses (18 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>PLNT 300</td>
<td>3</td>
<td>Cropping Systems</td>
</tr>
<tr>
<td>PLNT 305</td>
<td>3</td>
<td>Plant Pathology</td>
</tr>
</tbody>
</table>
PLNT 310  (3)  Plant Propagation
PLNT 353  (3)  Plant Structure and Function
PLNT 434  (3)  Weed Biology and Control
PLNT 435  (3)  Plant Breeding

Complementary Courses (6 credits)
6 credits of complementary courses selected from:

AGRI 340  (3)  Principles of Ecological Agriculture
PLNT 203  (3)  Economic Botany
PLNT 302  (3)  Forage Crops and Pastures
PLNT 307  (3)  Agroecology of Vegetables and Fruits
PLNT 312  (3)  Urban Horticulture
PLNT 322  (3)  Greenhouse Management
PLNT 331  (3)  Grains and Biofuel Crops
PLNT 489  (1)  Project Planning and Proposal
PLNT 490  (2)  Research Project
SOIL 445  (3)  Agroenvironmental Fertilizer Use

Revision, August 2011. End of revision.

2.7.2.7.19 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Professional Agrology (21 credits)

Revision, August 2011. Start of revision.

This specialization is required for students who wish to qualify for membership in the Ordre des agronomes du Québec (OAQ). It cannot be taken alone; it must be taken with the Major Agro-Environmental Sciences and a second specialization in Animal Production, Ecological Agriculture, Plant Production, or Soil and Water, or with the Major Agricultural Economics and the Agri-business specialization.

Note: Most students will require 21 credits to complete this specialization. In consultation with the Academic Adviser, students taking the Agri-business Specialization will need to take an additional 3 credits, chosen in consultation with the Academic Adviser, such that they meet the minimum requirements of the OAQ. The credits within this specialization may not count towards the student's major or other specialization. All of the 21 or 24 credits count only for this specialization.

Specialization Coordinator: Professor Joann Whalen
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380

Required Courses (12 credits)

AGRI 330  (1)  Agricultural Legislation
AGRI 410D1  (3)  Agrology Internship
AGRI 410D2  (3)  Agrology Internship
AGRI 430  (2)  Professional Practice in Agrology
AGRI 490  (3)  Agri-Food Industry Project

Complementary Courses
9-12 credits

Note: students in Animal Production, Ecological Agriculture, Plant Production, or Soil and Water Resources specializations must take 9 complementary credits, while students in the Agri-business specialization must take 12 complementary credits.

For students in the Agro-Environmental Sciences major with a specialization in Animal Production, Ecological Agriculture, Plant Production, or Soil and Water Resources:

3 credits from:
AGEC 332 (3) Farm Management and Finance
ANSC 433 (3) Animal Nutrition
SOIL 445 (3) Agroenvironmental Fertilizer Use

Plus 6-9 additional credits, approved by the Academic Adviser, in agricultural sciences or applied agriculture to meet the requirements of the OAQ.

For students in the Agri-business Specialization:
6 credits from:
AEBI 212 (3) Evolution and Phylogeny
LSCI 202 (3) Molecular Cell Biology
LSCI 204 (3) Genetics
LSCI 211 (3) Biochemistry 1
LSCI 230 (3) Introductory Microbiology

3 credits from:
ANSC 451 (3) Dairy and Beef Production Management
ANSC 458 (3) Swine and Poultry Production

3 credits from:
PLNT 300 (3) Cropping Systems
PLNT 302 (3) Forage Crops and Pastures
PLNT 434 (3) Weed Biology and Control

Revision, August 2011. End of revision.

2.7.2.7.20 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Soil and Water Resources (24 credits)

Revision, August 2011. Start of revision.

This specialization will interest students who want to understand how soils and water interact within managed ecosystems such as urban or agricultural landscapes. The conservation and management of agricultural soils, issues affecting watershed management and decision making, and the remediation of contaminated soils will be examined. When taken with the Agro-Environmental Sciences Major and the specialization in Professional Agrology, this specialization conforms with the eligibility requirements for the Ordre des agronomes du Québec.

Specialization Coordinator: Professor Joann Whalen
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380

Required Courses (15 credits)
* Note: SOIL 335 and SOIL 445 are offered in alternate years.
BREE 217 (3) Hydrology and Water Resources
SOIL 315 (3) Soil Fertility and Fertilizer Use
SOIL 326 (3) Soils in a Changing Environment
SOIL 335* (3) Soil Ecology and Management
SOIL 445* (3) Agroenvironmental Fertilizer Use

Complementary Courses (9 credits)
9 credits of complementary courses selected as follows:

3 credits from:

AGRI 435 (3)  Soil and Water Quality Management
BREE 416 (3)  Engineering for Land Development

6 credits from:

BREE 322 (3)  Organic Waste Management
BREE 327 (3)  Bio-Environmental Engineering
ENVB 301 (3)  Meteorology
ENVB 430 (3)  GIS for Natural Resource Management
NRSC 333 (3)  Pollution and Bioremediation
SOIL 510 (3)  Environmental Soil Chemistry

Revision, August 2011. End of revision.

2.7.2.7.21 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) – Wildlife Biology (24 credits)

Revision, August 2011. Start of revision.

This specialization focuses on the ecology of vertebrate animals, their biological and physical environment, and the interactions that are important in the management of ecological communities and wildlife species. Students have access to local wildlife resources including the Avian Science and Conservation Centre, the McGill Arboretum, the Stonycroft Wildlife Area, the Molson Reserve, and the Ecomuseum.

Specialization Coordinator: Professor Murray Humphries
Academic Adviser: Dr. Julie Major
Macdonald-Stewart Building, Room 2-082
Telephone: 514-398-8380

Required Courses (13 credits)

PLNT 358 (3)  Flowering Plant Diversity
WILD 307 (3)  Natural History of Vertebrates
WILD 401 (4)  Fisheries and Wildlife Management
WILD 421 (3)  Wildlife Conservation

Complementary Courses (11 credits)

11 credits of complementary courses selected as follows:

At least 6 credits from the following:

BIOL 427 (3)  Herpetology
WILD 350 (3)  Mammalogy
WILD 420 (3)  Ornithology

At least 5 credits from the following:

ENVB 315 (3)  Science of Inland Waters
NRSC 514 (3)  Freshwater Ecosystems
WILD 311 (3)  Ethology
WILD 415 (2)  Conservation Law
The Department of Bioresource Engineering collaborates with other departments and the Faculty of Engineering in providing courses of instruction for a curriculum in Bioresource Engineering. Graduates qualify to apply for registration as professional engineers in any province of Canada. The professional agrology option qualifies graduates to apply for registration to the Ordre des agronomes du Québec.

There are five streams offered within the Bioresource Engineering Major. Via the appropriate choice of elective course sets, a particular area of study may be emphasized. More information about these streams and the suggested course sets for each can be found on the Department website at www.mcgill.ca/bioeng.

In the Bio-Environmental Engineering stream, students learn about soil and water quality management and conservation, geomatics, hydrology and water resources, organic waste treatment, use of GIS for biosystem operation, engineering for land development, climate control in buildings, ecosystem remediation, and many other related topics.

Students who follow the Soil and Water stream learn about hydrology, irrigation and drainage, soil and water management, environmental quality control and remediation, structural design, machinery design, artificial intelligence, GIS, and remote sensing.

In the Ecological Engineering stream, students learn how to apply principals of engineering and ecology to the design and implementation of complex ecological systems. They learn how to create systems that preserve and enhance natural ecological processes as a means of fulfilling design requirements.

In the Food and Bioprocessing stream, students are taught about the engineering of foods and food processes, physical properties of biological materials, post-harvest technology, fermentation and bio-processing, the management of organic wastes, biotechnology, the design of machinery for bioprocessing, etc.

Students who specialize in the Agricultural Engineering stream will learn about machine design, machinery, robotics, structural design, environmental quality control, waste management, artificial intelligence, GIS, remote sensing, complex system simulation, and much more.

The Professional Agrology option offers a course selection guided to qualify graduates for registration as professional agrologists with the Ordre des agronomes du Québec.

All required and complementary courses must be passed with a minimum grade of C. One term is spent taking courses from the Faculty of Engineering on the McGill downtown campus.

Students also have the opportunity to pursue a minor. Several possibilities are: Agricultural Production, Environment, Ecological Agriculture, Biotechnology, Computer Science, Construction Engineering and Management, Entrepreneurship, and Environmental Engineering. Details of some of these minors can be found under Faculty of Engineering > Minor Programs. To complete a minor, it is necessary to spend at least one extra term beyond the normal requirements of the B.Eng.(Bioresource) program.

See section 2.5.5.1: Minimum Credit Requirement for prerequisites and minimum credit requirements.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>BREE 301</td>
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<td>Biothermodynamics</td>
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<td>BREE 305</td>
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<td>BREE 312</td>
<td>(3)</td>
<td>Electric Circuits and Machines</td>
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<tr>
<td>BREE 319</td>
<td>(3)</td>
<td>Engineering Mathematics</td>
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<td>BREE 327</td>
<td>(3)</td>
<td>Bio-Environmental Engineering</td>
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<tr>
<td>BREE 341</td>
<td>(3)</td>
<td>Mechanics of Materials</td>
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<tr>
<td>BREE 481</td>
<td>(.5)</td>
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<tr>
<td>BREE 482</td>
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<tr>
<td>BREE 490</td>
<td>(3)</td>
<td>Engineering Design 2</td>
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<tr>
<td>BREE 495</td>
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<td>Engineering Design 3</td>
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<tr>
<td>FACC 400</td>
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<td>Engineering Professional Practice</td>
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<tr>
<td>MECH 289</td>
<td>(3)</td>
<td>Design Graphics</td>
</tr>
<tr>
<td>MIME 310</td>
<td>(3)</td>
<td>Engineering Economy</td>
</tr>
</tbody>
</table>

**Complementary Courses**

60 credits of the complementary courses selected as follow:

- **6 credits - Set A**
- **9 credits - Set B (Natural Sciences and Mathematics)**
- **9 credits - Set C (Social Sciences)**
- **36 credits - Set D (Engineering)**

**Set A**

One of the following:

- AEMA 310 (3) Statistical Methods 1
- CIVE 302 (3) Probabilistic Systems
- MATH 323 (3) Probability

One of the following:

- CHEE 315 (4) Heat and Mass Transfer
- MECH 346 (3) Heat Transfer

**Set B - Natural Sciences and Mathematics**

9 credits with a minimum of 3 credits chosen from the list below:

- AEBI 210 (3) Organisms 1
- AEBI 211 (3) Organisms 2
- ENVB 305 (3) Population & Community Ecology
- ENVB 315 (3) Science of Inland Waters
- LSCI 202 (3) Molecular Cell Biology
- LSCI 211 (3) Biochemistry 1
LSCI 230  (3)  Introductory Microbiology
MICR 331  (3)  Microbial Ecology

Plus 6 credits chosen in consultation with the Academic Adviser.

**Set C - Social Sciences**

Minimum of 3 credits from the following list:

CHEE 230  (3)  Environmental Aspects of Technology
CIVE 469  (3)  Infrastructure and Society
ENVR 201  (3)  Society, Environment and Sustainability
MIME 308  (3)  Social Impact of Technology
SOCI 235  (3)  Technology and Society

Plus 6 credits of Social Sciences, Management Studies, Humanities, or Law courses at the U1 undergraduate level or higher with approval of the Academic Adviser.

Note: these 6 credits may include one 3-credit language course other than the student's normal spoken languages.

**Set D - Engineering**

36 credits from the following list with the option (and approval of the Academic Adviser) of taking a maximum of 6 credits from other courses offered in the Faculty of Engineering:

BREE 214  (3)  Geomatics
BREE 217  (3)  Hydrology and Water Resources
BREE 314  (3)  Agri-Food Buildings
BREE 315  (3)  Design of Machines
BREE 322  (3)  Organic Waste Management
BREE 325  (3)  Food Process Engineering
BREE 412  (3)  Machinery Systems Engineering
BREE 416  (3)  Engineering for Land Development
BREE 418  (3)  Soil Mechanics and Foundations
BREE 419  (3)  Structural Design
BREE 420  (3)  Engineering for Sustainability
BREE 423  (3)  Biological Material Properties
BREE 430  (3)  GIS for Natural Resource Management
BREE 497  (3)  Bioresource Engineering Project
BREE 501  (3)  Simulation and Modelling
BREE 502  (3)  Drainage/Irrigation Engineering
BREE 504  (3)  Instrumentation and Control
BREE 506  (3)  Advances in Drainage Management
BREE 509  (3)  Hydrologic Systems and Modelling
BREE 510  (3)  Watershed Systems Management
BREE 512  (3)  Soil Cutting and Tillage
BREE 515  (3)  Soil Hydrologic Modelling
BREE 518  (3)  Bio-Treatment of Wastes
BREE 519  (3)  Advanced Food Engineering
BREE 520  (3)  Food, Fibre and Fuel Elements
BREE 525  (3)  Climate Control for Buildings
## Bachelor of Engineering (Bioresource) (B.Eng.(Bioresource)) – Major Bioresource Engineering – Professional Agrology (113 credits)

### Required Courses (56 credits)

<table>
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<tr>
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<th>Course Title</th>
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<tr>
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<td>Intermediate Calculus</td>
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<td>AEMA 305</td>
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<td>Differential Equations</td>
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<td>AGRI 330</td>
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<td>Agricultural Legislation</td>
</tr>
<tr>
<td>AGRI 430</td>
<td>(2)</td>
<td>Professional Practice in Agrology</td>
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<tr>
<td>BREE 205</td>
<td>(3)</td>
<td>Engineering Design 1</td>
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<tr>
<td>BREE 210</td>
<td>(3)</td>
<td>Mechanical Analysis &amp; Design</td>
</tr>
<tr>
<td>BREE 216</td>
<td>(3)</td>
<td>Bioresource Engineering Materials</td>
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<tr>
<td>BREE 252</td>
<td>(3)</td>
<td>Computing for Engineers</td>
</tr>
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<td>BREE 301</td>
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<td>Biothermodynamics</td>
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<td>BREE 305</td>
<td>(3)</td>
<td>Fluid Mechanics</td>
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<td>Engineering Economy</td>
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### Complementary Courses

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<tr>
<th>Course Code</th>
<th>Credit(s)</th>
<th>Course Title</th>
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</table>

Revision, August 2011. Start of revision.

Academic Adviser-U1: Professor Grant Clark
Macdonald-Stewart Building, Room 1-099
Telephone: 514-398-7784
57 credits of the complementary courses selected as follows:
6 credits - Set A
12 credits - Set B (Natural Sciences)
6 credits - Set C (Social Sciences)
33 credits - Set D (Engineering)

Set A
6 credits
One course from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AEMA 310</td>
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<tr>
<td>CIVE 302</td>
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<tr>
<td>MATH 323</td>
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</table>

One course selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEE 315</td>
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</tr>
<tr>
<td>MECH 346</td>
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</table>

Set B - Natural Sciences
6 credits from each of the following two groups:

Group 1 - Biology

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>AEBI 211</td>
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<td>LSCI 204</td>
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</tr>
<tr>
<td>LSCI 211</td>
<td>3</td>
</tr>
<tr>
<td>LSCI 230</td>
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</table>

Group 2 - Agricultural Sciences

<table>
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<tr>
<td>AEBI 210</td>
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<td>ANSC 250</td>
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<td>ANSC 433</td>
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<td>ANSC 451</td>
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<td>PLNT 322</td>
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<tr>
<td>PLNT 331</td>
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</table>

Set C - Social Sciences
3 credits from the following list:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AEMA 310</td>
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</tr>
<tr>
<td>CIVE 302</td>
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</tr>
<tr>
<td>MATH 323</td>
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</table>

One course selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEE 315</td>
<td>4</td>
</tr>
<tr>
<td>MECH 346</td>
<td>3</td>
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</tbody>
</table>
CHEE 230  (3) Environmental Aspects of Technology
CIVE 469  (3) Infrastructure and Society
ENVR 201  (3) Society, Environment and Sustainability
MIME 308  (3) Social Impact of Technology
SOCI 235  (3) Technology and Society

Plus one 3-credit Social Sciences, Management Studies, Humanities, Law, or Language course with permission of the Academic Adviser.

Set D - Engineering
33 credits from Group 1, Group 2, and Group 3.
(Minimum of 6 credits from Group 1 or Group 2 below)

Group 1 - Soil and Water
BREE 214  (3) Geomatics
BREE 217  (3) Hydrology and Water Resources
BREE 322  (3) Organic Waste Management
BREE 416  (3) Engineering for Land Development
BREE 418  (3) Soil Mechanics and Foundations
BREE 430  (3) GIS for Natural Resource Management
BREE 502  (3) Drainage/Irrigation Engineering
BREE 506  (3) Advances in Drainage Management
BREE 509  (3) Hydrologic Systems and Modelling
BREE 510  (3) Watershed Systems Management
BREE 512  (3) Soil Cutting and Tillage
BREE 515  (3) Soil Hydrologic Modelling
BREE 518  (3) Bio-Treatment of Wastes
BREE 533  (3) Water Quality Management

Group 2 - Food Processing
BREE 325  (3) Food Process Engineering
BREE 519  (3) Advanced Food Engineering
BREE 520  (3) Food, Fibre and Fuel Elements
BREE 530  (3) Fermentation Engineering
BREE 531  (3) Post-Harvest Drying
BREE 532  (3) Post-Harvest Storage
CHEE 474  (3) Biochemical Engineering

Group 3 - Other Engineering
BREE 314  (3) Agri-Food Buildings
BREE 315  (3) Design of Machines
BREE 412  (3) Machinery Systems Engineering
BREE 419  (3) Structural Design
BREE 423  (3) Biological Material Properties
BREE 497  (3) Bioresource Engineering Project
Bachelor of Engineering (Bioresource) – B.Eng.(Bioresource) Related Programs

2.7.3.5.1 Minor in Environmental Engineering
For more information, see section 2.7.6.7: Minor in Environmental Engineering (27 credits).

2.7.3.5.2 Barbados Field Study Semester
For more information, see Field Studies and Study Abroad > Field Studies > Barbados Field Study Semester.

2.7.3.5.3 Internship Opportunities and Co-op Experiences
For more information, see section 2.6.1: Internship Opportunities and Co-op Experience.

Bachelor of Science (Food Science) - B.Sc.(F.Sc.)
The Food Science program has been designed to combine the basic sciences, particularly chemistry, with specialty courses that are directly related to the discipline.

Freshman Adviser
Dr. Alice Cherestes
Macdonald-Stewart Building, Room 1-023
Telephone: 514-398-7980

2.7.4.1 Bachelor of Science (Food Science) (B.Sc.(F.Sc.)) - Major Food Science - Food Science Option (90 credits)
This program is intended for those students interested in the multidisciplinary field of food science. The courses are integrated to acquaint the student with food processing, food chemistry, quality assurance, analytical procedures, food products, standards, and regulations. The program prepares graduates for employment as scientists in industry or government, in regulatory, research, quality assurance, or product development capacities.

Graduates have the academic qualifications for membership in the Canadian Institute of Food Science and Technology (CIFST). Graduates of Food Science Major with Food Science Option can also qualify for recognition by the Institute of Food Technologists (IFT).

Food Science Option is completed to 90 credits with free elective courses.

Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements", in this publication for prerequisites and minimum credit requirements.

Academic Adviser-U1: Professor Salwa Karboune
Macdonald-Stewart Building, Room 1-040
Telephone: 514-398-8666

Required Courses (51 credits)
Note: If an introductory CEGEP-level Organic Chemistry course has not been completed, then FDSC 230 (Organic Chemistry) must be completed as a replacement.

AEMA 310 (3) Statistical Methods 1
AGRI 510 (3) Professional Practice
BREE 324 (3) Elements of Food Engineering
FDSC 200 (3) Introduction to Food Science
FDSC 213 (3) Analytical Chemistry 1
FDSC 251 (3) Food Chemistry 1
FDSC 300 (3) Principles of Food Analysis 1
FDSC 310 (3) Post Harvest Fruit and Vegetable Technology
FDSC 319 (3) Food Commodities
FDSC 330 (3) Food Processing
FDSC 400 (3) Food Packaging
FDSC 425 (3) Principles of Quality Assurance
FDSC 442 (3) Food Microbiology
FDSC 495D1 (1.5) Food Science Seminar
FDSC 495D2 (1.5) Food Science Seminar
LSCI 211 (3) Biochemistry 1
LSCI 230 (3) Introductory Microbiology
NUTR 207 (3) Nutrition and Health

Additional Required Courses - Food Science Option (18 credits)
FDSC 233 (3) Physical Chemistry
FDSC 305 (3) Food Chemistry 2
FDSC 315 (3) Separation Techniques in Food Analysis 1
FDSC 334 (3) Analysis of Food Toxins and Toxicants
FDSC 405 (3) Food Product Development
FDSC 410 (3) Flavour Chemistry

Electives (21 credits)
Electives are selected in consultation with an academic adviser, to meet the minimum 90-credit requirement for the degree. A portion of these credits should be in the humanities/social sciences.

2.7.4.2 Bachelor of Science (Food Science) (B.Sc.(F.Sc.)) - Major Food Science - Food Chemistry Option (90 credits)
This program is intended for those students interested in the multidisciplinary field of food science. The courses are integrated to acquaint the student with food processing, food chemistry, quality assurance, analytical procedures, food products, standards, and regulations. The program prepares graduates for employment as scientists in industry or government, in regulatory, research, quality assurance, or product development capacities.
Graduates have the academic qualifications for membership in the Canadian Institute of Food Science and Technology (CIFST). Graduates of the Food Science Major with Food Chemistry Option can also qualify for recognition by the Institute of Food Technologists (IFT) and the Ordre des chimistes du Québec (OCQ). Food Chemistry Option is completed to 90 credits with free elective courses.
Please refer to "Faculty Information and Regulations" > "Minimum Credit Requirements", in this publication for prerequisites and minimum credit requirements.
Academic Adviser-U1: Professor Salwa Karboune
Macdonald-Stewart Building, Room 1-040
Telephone: 514-398-8666

Required Courses (51 credits)
Note: If an introductory CEGEP-level Organic Chemistry course has not been completed, then FDSC 230 (Organic Chemistry) must be completed as a replacement.
AEMA 310 (3) Statistical Methods 1
AGRI 510 (3) Professional Practice
BREE 324 (3) Elements of Food Engineering
FDSC 200 (3) Introduction to Food Science
FDSC 213 (3) Analytical Chemistry 1
FDSC 251 (3) Food Chemistry 1
FDSC 300 (3) Principles of Food Analysis 1
## Additional Required Courses - Food Chemistry Option (30 credits)

Note: Graduates of this program are qualified for recognition by the Institute of Food Technologists (IFT) and the Ordre des chimistes du Québec (OCQ).

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tr>
<td>FDSC 233</td>
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<td>Physical Chemistry</td>
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<td>FDSC 315</td>
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<td>Separation Techniques in Food Analysis 1</td>
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<tr>
<td>FDSC 334</td>
<td>3</td>
<td>Analysis of Food Toxins and Toxicants</td>
</tr>
<tr>
<td>FDSC 405</td>
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<td>FDSC 410</td>
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<td>FDSC 491</td>
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<td>Research Project 2</td>
</tr>
<tr>
<td>FDSC 515</td>
<td>3</td>
<td>Enzyme Thermodynamics/Kinetics</td>
</tr>
<tr>
<td>FDSC 520</td>
<td>3</td>
<td>Biophysical Chemistry of Food</td>
</tr>
</tbody>
</table>

### Electives (9 credits)

Electives are selected in consultation with academic adviser, to meet the minimum 90-credit requirement for the degree. A portion of these credits should be in the humanities/social sciences.

### 2.7.4.3 Concurrent Bachelor of Science in Food Science (B.Sc.(F.Sc.)) and Bachelor of Science Nutritional Sciences (B.Sc.(Nutr.Sc.)) - Food Science/Nutritional Science Major (122 credits)

The concurrent program B.Sc. (F.Sc.) and B.Sc. (Nutr.Sc.) is designed to give motivated students the opportunity to combine the two fields. The two disciplines complement each other with Food Science providing the scientific foundation in the fundamentals of food science and its application in the food system, while Nutritional Sciences brings the fundamental knowledge in the nutritional aspects of food and metabolism. The program aims to train students with the fundamental knowledge in both disciplines to promote the development of healthy food products for human consumption. The overall program is structured and closely integrated so as to satisfy the academic requirements of both degrees as well as the professional training or exposure to industry.

Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements", in this publication for prerequisites and minimum credit requirements.

**Academic Adviser-U1:** Professor Selim Kermasha  
Macdonald-Stewart Building, Room 1-033  
Telephone: 514-398-7922

### Required Courses (79 credits)

<table>
<thead>
<tr>
<th>Course</th>
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<td>Statistical Methods 1</td>
</tr>
<tr>
<td>ANSC 234</td>
<td>3</td>
<td>Biochemistry 2</td>
</tr>
<tr>
<td>ANSC 323</td>
<td>3</td>
<td>Mammalian Physiology</td>
</tr>
<tr>
<td>ANSC 424</td>
<td>3</td>
<td>Metabolic Endocrinology</td>
</tr>
<tr>
<td>Course Code</td>
<td>Credits</td>
<td>Course Title</td>
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</tr>
<tr>
<td>FDSC 200</td>
<td>3</td>
<td>Introduction to Food Science</td>
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<tr>
<td>FDSC 213</td>
<td>3</td>
<td>Analytical Chemistry 1</td>
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<tr>
<td>FDSC 251</td>
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<tr>
<td>FDSC 300</td>
<td>3</td>
<td>Principles of Food Analysis 1</td>
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<tr>
<td>FDSC 305</td>
<td>3</td>
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<td>FDSC 310</td>
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<td>Post Harvest Fruit and Vegetable Technology</td>
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<td>FDSC 315</td>
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<td>FDSC 319</td>
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<td>FDSC 330</td>
<td>3</td>
<td>Food Processing</td>
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<tr>
<td>FDSC 334</td>
<td>3</td>
<td>Analysis of Food Toxins and Toxicants</td>
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<tr>
<td>FDSC 400</td>
<td>3</td>
<td>Food Packaging</td>
</tr>
<tr>
<td>FDSC 425</td>
<td>3</td>
<td>Principles of Quality Assurance</td>
</tr>
<tr>
<td>FDSC 442</td>
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<td>Food Microbiology</td>
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<tr>
<td>FDSC 497</td>
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<td>3</td>
<td>Nutrition and Health</td>
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<tr>
<td>NUTR 214</td>
<td>4</td>
<td>Food Fundamentals</td>
</tr>
<tr>
<td>NUTR 307</td>
<td>3</td>
<td>Human Nutrition</td>
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<tr>
<td>NUTR 337</td>
<td>3</td>
<td>Nutrition Through Life</td>
</tr>
<tr>
<td>NUTR 344</td>
<td>4</td>
<td>Clinical Nutrition 1</td>
</tr>
<tr>
<td>NUTR 497</td>
<td>1.5</td>
<td>Professional Seminar: Nutrition</td>
</tr>
<tr>
<td>NUTR 512</td>
<td>3</td>
<td>Herbs, Foods and Phytochemicals</td>
</tr>
</tbody>
</table>

**Complementary Courses (30 credits)**

Complementary courses are selected as follows:

At least 9 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>AGEC 200</td>
<td>3</td>
<td>Principles of Microeconomics</td>
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<td>AGEC 201</td>
<td>3</td>
<td>Principles of Macroeconomics</td>
</tr>
<tr>
<td>AGEC 330</td>
<td>3</td>
<td>Agriculture and Food Markets</td>
</tr>
<tr>
<td>AGEC 430</td>
<td>3</td>
<td>Agriculture, Food and Resource Policy</td>
</tr>
<tr>
<td>AGEC 442</td>
<td>3</td>
<td>Economics of International Agricultural Development</td>
</tr>
<tr>
<td>AGEC 450</td>
<td>3</td>
<td>Agriculture Business Management</td>
</tr>
</tbody>
</table>

At least 9 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGEC 242</td>
<td>3</td>
<td>Management Theories and Practices</td>
</tr>
<tr>
<td>ENVR 203</td>
<td>3</td>
<td>Knowledge, Ethics and Environment</td>
</tr>
<tr>
<td>NRSC 340</td>
<td>3</td>
<td>Global Perspectives on Food</td>
</tr>
<tr>
<td>NUTR 301</td>
<td>3</td>
<td>Psychology</td>
</tr>
<tr>
<td>NUTR 322</td>
<td>2</td>
<td>Applied Sciences Communication</td>
</tr>
<tr>
<td>NUTR 446</td>
<td>3</td>
<td>Applied Human Resources</td>
</tr>
</tbody>
</table>
12 credits from the following:

FDSC 480  (12)  Industrial Stage/Food
NUTR 480  (12)  Industrial Stage/Nutrition

Electives

13 credits to meet the credit requirements for the degree.

2.7.4.3.1 About the Concurrent Bachelor of Science in Food Science (B.Sc.(F.Sc.)) and Bachelor of Science in Nutritional Sciences (B.Sc.(Nutr.Sc.)) Program

Unique in North America, the new concurrent degree program in Food Science and Nutritional Science offers the best education in these complementary fields and opens the door to a multitude of career paths.

The Food Science component of the program focuses on the chemistry of food and the scientific principles underlying food preservation, processing, and packaging to provide consumers with quality foods. The Nutritional Science component deals with the science of the nutritional aspects of food and metabolism. The program has been carefully structured to ensure that students receive the training that industry demands.

2.7.4.4 Bachelor of Science (Food Science) – B.Sc.(F.Sc.) Related Programs
2.7.4.4.1 Certificate in Food Science

Detailed information on this certificate program can be found under section 2.7.7.2: Certificate in Food Science (30 credits) in this publication.

2.7.5 Bachelor of Science (Nutritional Sciences) – B.Sc.(Nutr.Sc.)

2.7.5.1 Dietetics Major

Academic Advising Coordinator

Sandy Phillips, M.Sc., R.D.
School of Dietetics and Human Nutrition

2.7.5.2 Nutrition Major

Academic Advising Coordinator

Kristine G. Koski, Ph.D., R.D. (U.S.)
School of Dietetics and Human Nutrition

2.7.5.3 About the B.Sc. (Nutritional Sciences) Program

Freshman Adviser

Professor Alice Cherestes
Macdonald-Stewart Building, Room1-023
Telephone: 514-398-7980

2.7.5.4 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) - Major Dietetics (115 credits)

The Dietetics Major, which includes a 40-week internship (Stage) as part of its degree requirements, is a professional program that leads to membership in a provincial regulatory body and professional licensure as a dietitian/nutritionist.

Graduates are qualified for challenging professional and leadership positions related to food and health, as dietitians, nutritionists, and food administrators. The designations "Dietitian" and "Nutritionist" are reserved titles associated with reserved acts in the province of Quebec. As clinical nutritionists, dietitians may work in health-care settings, nutrition counselling centres, clinics, and private practice. As community nutritionists, dietitians are involved in nutrition education programs through school boards, sports centres, and local and international health agencies. The dietitian in the food service sector participates in
all aspects of management to assure quality food products and services. Postgraduate programs are available to qualified graduates. The duration of the program is 3.5 years.

Successful graduates are qualified to apply for membership with the Ordre professionnel des diététistes du Québec (O.P.D.Q.) and/or other provincial regulatory bodies, as well as Dietitians of Canada. Forty weeks of supervised professional experience, "Stage", in clinical and community nutrition and food service systems management are included in the undergraduate program.

Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements", in this publication for prerequisites and minimum credit requirements.

Academic Advising Coordinator: Sandy Phillips, M.Sc., R.D.

School of Dietetics and Human Nutrition
Laird Hall, Room 199b
Telephone: 514-398-7982

Notes:

The School firmly applies prerequisite requirements for registration in all required courses in the Dietetics Major.

All required and complementary courses must be passed with a minimum grade of C.

Advising Note for Professional Practice

* Note: Successful completion of each rotation of each level of Stage (Professional Practice) is required to pass that level of Stage. Each level is a prerequisite for the next level and must be passed with a minimum grade of C. Undergraduate registration is restricted to students in the Dietetics Major, CGPA greater than or equal to 3.0. Students in the Dietetics Major who have a CGPA below a 3.0 for two consecutive years will not be permitted to continue in the program. Visiting and Special students must contact the Academic Advising Coordinator (Dietetics) regarding course registration approval.

Students are reminded that ethical conduct on Professional Practice (Stage) rotations is required. The Faculty reserves the right to require the withdrawal of any student if at any time the Faculty feels the student has displayed unprofessional conduct or demonstrates incompetence.

Required Courses (100 credits)

Required courses and Professional Practice (Stage) courses are sequenced in a specific order over nine terms (3.5-year program). See http://www.mcgill.ca/dietetics for detailed information regarding the undergraduate program plan.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEMA 310</td>
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<td>Management Theories and Practices</td>
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<td>AGEC 343</td>
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<td>Accounting and Cost Control</td>
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<td>ANSC 234</td>
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<td>Biochemistry 2</td>
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<td>ANSC 323</td>
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<td>Metabolic Endocrinology</td>
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<td>LSCI 230</td>
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<td>Introductory Microbiology</td>
</tr>
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<td>NUTR 207</td>
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<tr>
<td>NUTR 208*</td>
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<tr>
<td>NUTR 209*</td>
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<td>NUTR 217</td>
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<td>NUTR 310*</td>
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<td>NUTR 311*</td>
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<td>NUTR 344</td>
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<td>Clinical Nutrition 1</td>
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<tr>
<td>NUTR 345</td>
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<td>Food Service Systems Management</td>
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<tr>
<td>NUTR 346</td>
<td>2</td>
<td>Quantity Food Production</td>
</tr>
<tr>
<td>NUTR 403</td>
<td>3</td>
<td>Nutrition in Society</td>
</tr>
<tr>
<td>NUTR 408*</td>
<td>1</td>
<td>Professional Practice Stage 3A</td>
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</tbody>
</table>
NUTR 409*  (8)  Professional Practice Stage 3B
NUTR 436  (2)  Nutritional Assessment
NUTR 438  (2)  Interviewing and Counselling
NUTR 446  (3)  Applied Human Resources
NUTR 450  (3)  Research Methods: Human Nutrition
NUTR 510*  (14)  Professional Practice - Stage 4
NUTR 545  (5)  Clinical Nutrition 2

**Complementary Courses (9 credits)**

3 credits from either:

- ANSC 330  (3)  Fundamentals of Nutrition
- NUTR 307  (3)  Human Nutrition

Note: ANSC 330 or NUTR 307 must be taken in Fall of U2.

3 credits of Human Behavioural Science courses chosen from:

- NUTR 301  (3)  Psychology

Or equivalent from another faculty

3 credits from the social sciences that may include, but are not limited to:

- AGEc 200  (3)  Principles of Microeconomics
- ENVR 201  (3)  Society, Environment and Sustainability
- ENVR 203  (3)  Knowledge, Ethics and Environment
- RELG 270  (3)  Religious Ethics and the Environment

Or social science course from another faculty

**Elective Courses (6 credits)**

Students who need to improve their proficiency in either English or French are strongly encouraged to choose their electives for that purpose. Students who wish to take language courses should check with the French Language Centre, Faculty of Arts, as placement testing may be required. Students are encouraged to develop a working knowledge of French in order to optimize their participation and learning in Stage placement sites.

Alternate elective choices may include, but are not limited to:

- AEHM 300  (3)  ESL: High Intermediate 1
- AEHM 301  (3)  ESL: High Intermediate 2
- AEHM 330  (3)  Academic and Scientific Writing
- NUTR 501  (3)  Nutrition in Developing Countries
- NUTR 503  (3)  Bioenergetics and the Lifespan
- NUTR 512  (3)  Herbs, Foods and Phytochemicals

**A Compulsory Immunization**

A compulsory immunization program exists at McGill which is required for Dietetics students to practice. Students should complete their immunization before or soon after arriving at Macdonald campus; confirmation of medical/health documentation will be sent by the health nurse to the University Coordinator (Stage) and must be complete prior to commencement of Stage. Certain deadlines may apply.

2.7.5.5  Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Food Function and Safety (90 credits)

Revision, August 2011. Start of revision.
This Major offers a core emphasis on the scientific fundamentals of nutrition and metabolism throughout the lifespan from the molecular to the organismal level. The concentration in food function and safety covers the ranges from health effects of phytochemicals and food toxicants, food chemistry and analysis, food safety, product development and influence of constituents of food on health. This degree does not lead to professional licensure as a dietitian/nutritionist. Graduates are qualified for careers in the biotechnology field, pharmaceutical and/or food industries, government laboratories, and the health science communications field. Graduates often continue on to graduate studies preparing for careers in research, medicine, and dentistry, or as specialists in nutrition.

Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements", in this publication for prerequisites and minimum credit requirements.

Academic Advising Coordinator: Professor Kristine Koski
School of Dietetics and Human Nutrition
Macdonald-Stewart Building, Room 2-039
Telephone: 514-398-7840

**Required Courses (60 credits)**

All required courses must be passed with a minimum grade of C.

- AEMA 310 (3) Statistical Methods 1
- ANSC 234 (3) Biochemistry 2
- ANSC 323 (3) Mammalian Physiology
- ANSC 424 (3) Metabolic Endocrinology
- FDSC 200 (3) Introduction to Food Science
- FDSC 251 (3) Food Chemistry 1
- FDSC 300 (3) Principles of Food Analysis 1
- FDSC 305 (3) Food Chemistry 2
- LSCI 204 (3) Genetics
- LSCI 211 (3) Biochemistry 1
- LSCI 230 (3) Introductory Microbiology
- NUTR 207 (3) Nutrition and Health
- NUTR 214 (4) Food Fundamentals
- NUTR 322 (2) Applied Sciences Communication
- NUTR 337 (3) Nutrition Through Life
- NUTR 344 (4) Clinical Nutrition 1
- NUTR 450 (3) Research Methods: Human Nutrition
- NUTR 512 (3) Herbs, Foods and Phytochemicals
- NUTR 551 (3) Analysis of Nutrition Data

**Complementary Courses (15 credits)**

15 credits of complementary courses are selected as follows:

3 credits, one of the following courses:

- ANSC 330 (3) Fundamentals of Nutrition
- NUTR 307 (3) Human Nutrition

At least 3 credits from the following courses:

- ANSC 560 (3) Biology of Lactation
- NUTR 420 (3) Toxicology and Health Risks
- NUTR 501 (3) Nutrition in Developing Countries
- NUTR 503 (3) Bioenergetics and the Lifespan
At least 9 credits from the following courses:

- AGRI 510 (3) Professional Practice
- ANSC 350 (3) Food-Borne Pathogens
- FDSC 315 (3) Separation Techniques in Food Analysis 1
- FDSC 319 (3) Food Commodities
- FDSC 330 (3) Food Processing
- FDSC 334 (3) Analysis of Food Toxins and Toxicants
- FDSC 405 (3) Food Product Development
- FDSC 410 (3) Flavour Chemistry
- FDSC 425 (3) Principles of Quality Assurance
- FDSC 442 (3) Food Microbiology
- FDSC 520 (3) Biophysical Chemistry of Food
- FDSC 535 (3) Food Biotechnology
- FDSC 537 (3) Nutraceutical Chemistry
- FDSC 540 (3) Sensory Evaluation of Foods
- NUTR 430 (3) Directed Studies: Dietetics and Nutrition 1

Electives (15 credits)

15 credits of electives are taken to meet the minimum credit requirement for the degree. Reciprocal agreement allows all students to take a limited number of electives at any Quebec university. With prior approval, students can take electives at any Canadian or international university.

Revision, August 2011. Start of revision.

2.7.5.6 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Global Nutrition (90 credits)

Revision, August 2011. Start of revision.

This Major offers a core emphasis on the scientific fundamentals of nutrition and metabolism throughout the lifespan from the molecular to the organismal level. The concentration in global nutrition emphasizes the importance of the interaction of nutrition, diet, water, environment, and infection. This degree does not lead to professional licensure as a dietitian/nutritionist. Graduates are qualified for careers in the biotechnology field, pharmaceutical and/or food industries, government laboratories, and the health science communications field. Graduates often continue on to graduate studies preparing for careers in research, medicine, and dentistry, or as specialists in nutrition.

Please refer to "Faculty Information and Regulations" > "Minimum Credit Requirements", in this publication for prerequisites and minimum credit requirements.

Academic Advising Coordinator: Professor Kristine Koski
School of Dietetics and Human Nutrition
Macdonald-Stewart Building, Room 2-039
Telephone: 514-398-7840

Required Courses (60 credits)

All required courses must be passed with a minimum grade of C.

- AEMA 310 (3) Statistical Methods 1
- ANSC 234 (3) Biochemistry 2
- ANSC 323 (3) Mammalian Physiology
- ANSC 424 (3) Metabolic Endocrinology
- FDSC 200 (3) Introduction to Food Science
<table>
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<th>Course Code</th>
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<tbody>
<tr>
<td>FDSC 251</td>
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<td>Genetics</td>
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<td>(3)</td>
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</tr>
<tr>
<td>LSCI 230</td>
<td>(3)</td>
<td>Introductory Microbiology</td>
</tr>
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<td>Nutrition and Health</td>
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<tr>
<td>NUTR 214</td>
<td>(4)</td>
<td>Food Fundamentals</td>
</tr>
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<td>NUTR 322</td>
<td>(2)</td>
<td>Applied Sciences Communication</td>
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<tr>
<td>NUTR 337</td>
<td>(3)</td>
<td>Nutrition Through Life</td>
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<tr>
<td>NUTR 344</td>
<td>(4)</td>
<td>Clinical Nutrition 1</td>
</tr>
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<td>NUTR 450</td>
<td>(3)</td>
<td>Research Methods: Human Nutrition</td>
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<td>Herbs, Foods and Phytochemicals</td>
</tr>
<tr>
<td>NUTR 551</td>
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<td>Analysis of Nutrition Data</td>
</tr>
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</table>

**Complementary Courses (15 credits)**

15 credits of complementary courses are selected as follows:

3 credits, one of the following courses:

- ANSC 330 (3) Fundamentals of Nutrition
- NUTR 307 (3) Human Nutrition

At least 3 credits selected from:

- ANSC 560 (3) Biology of Lactation
- NUTR 420 (3) Toxicology and Health Risks
- NUTR 503 (3) Bioenergetics and the Lifespan
- NUTR 511 (3) Nutrition and Behaviour
- NUTR 545 (5) Clinical Nutrition 2

At least 9 credits selected from:

- AGEC 330 (3) Agriculture and Food Markets
- AGEC 442 (3) Economics of International Agricultural Development
- AGRI 340 (3) Principles of Ecological Agriculture
- AGRI 411 (3) Global Issues on Development, Food and Agriculture
- ANSC 560 (3) Biology of Lactation
- ANTH 227 (3) Medical Anthropology
- ANTH 302 (3) New Horizons in Medical Anthropology
- ENV 203 (3) Knowledge, Ethics and Environment
- GEOG 303 (3) Health Geography
- GEOG 403 (3) Global Health and Environmental Change
- NRSC 221 (3) Environment and Health
- NRSC 340 (3) Global Perspectives on Food
Electives (15 credits)

15 credits of Electives are taken to meet the minimum credit requirement for the degree. Reciprocal agreement allows all students to take a limited number of electives at any Quebec university. With prior approval, students can take electives at any Canadian or international university.

Revision, August 2011. End of revision.

2.7.5.7 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Health and Disease (90 credits)


This Major offers a core emphasis on the scientific fundamentals of nutrition and metabolism throughout the lifespan. This concentration emphasizes the influence of diet and nutrition on human health and the pathophysiology of chronic disease. This degree does not lead to professional licensure as a dietitian/nutritionist. Graduates are qualified for careers in health research, pharmaceutical and/or food industries, government laboratories, and the health science communications field. Graduates often continue on to graduate studies preparing for careers in research, medicine, and dentistry or as specialists in nutrition.

Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements", in this publication for prerequisites and minimum credit requirements.

Academic Advising Coordinator: Professor Kristine Koski
School of Dietetics and Human Nutrition
Macdonald-Stewart Building, Room 2-039
Telephone: 514-398-7840

Required Courses (60 credits)

All required courses must be passed with a minimum grade of C.

AEMA 310 (3) Statistical Methods 1
ANSC 234 (3) Biochemistry 2
ANSC 323 (3) Mammalian Physiology
ANSC 424 (3) Metabolic Endocrinology
FDSC 200 (3) Introduction to Food Science
FDSC 251 (3) Food Chemistry 1
FDSC 305 (3) Food Chemistry 2
LSCI 204 (3) Genetics
LSCI 211 (3) Biochemistry 1
LSCI 230 (3) Introductory Microbiology
NUTR 207 (3) Nutrition and Health
NUTR 214 (4) Food Fundamentals
NUTR 322 (3) Applied Sciences Communication
NUTR 337 (3) Nutrition Through Life
NUTR 344 (4) Clinical Nutrition 1
NUTR 450 (3) Research Methods: Human Nutrition
NUTR 512 (3) Herbs, Foods and Phytochemicals
NUTR 551 (3) Analysis of Nutrition Data
PARA 438 (3) Immunology

Complementary Courses (15 credits)
15 credits of complementary courses are selected as follows:

3 credits, one of the following courses:

- ANSC 330 (3) Fundamentals of Nutrition
- NUTR 307 (3) Human Nutrition

At least 3 credits from the following:

- ANSC 560 (3) Biology of Lactation
- NUTR 420 (3) Toxicology and Health Risks
- NUTR 501 (3) Nutrition in Developing Countries
- NUTR 503 (3) Bioenergetics and the Lifespan
- NUTR 511 (3) Nutrition and Behaviour
- NUTR 545 (5) Clinical Nutrition 2

At least 9 credits from the following courses:

- ANAT 214 (3) Systemic Human Anatomy
- ANAT 261 (4) Introduction to Dynamic Histology
- ANSC 312 (3) Animal Health and Disease
- ANSC 560 (3) Biology of Lactation
- MICR 341 (3) Mechanisms of Pathogenicity
- MIMM 314 (3) Immunology
- MIMM 414 (3) Advanced Immunology
- NUTR 430 (3) Directed Studies: Dietetics and Nutrition 1
- NUTR 436 (2) Nutritional Assessment
- PATH 300 (3) Human Disease
- PHAR 300 (3) Drug Action
- PHAR 301 (3) Drugs and Disease
- PHAR 303 (3) Principles of Toxicology
- PHGY 311 (3) Channels, Synapses & Hormones
- PHGY 312 (3) Respiratory, Renal, & Cardiovascular Physiology
- PHGY 313 (3) Blood, Gastrointestinal, & Immune Systems Physiology
- WILD 424 (3) Parasitology

**Elective Courses (15 credits)**

15 credits of electives are taken to meet the minimum credit requirement for the degree. A reciprocal agreement allows all students to take a limited number of electives at any Quebec university. With prior approval, students can take electives at any Canadian or international university.

**Revision, August 2011. Start of revision.**

2.7.5.8 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Nutritional Biochemistry (90 credits)

**Revision, August 2011. End of revision.**

This Major offers a core emphasis on the scientific fundamentals of nutrition and metabolism throughout the lifespan from the molecular to the organismal level. This concentration in nutritional biochemistry links nutrigenomics, nutrigenetics, and biotechnology with human health, regulation of metabolism, and the pathophysiology of inherited and chronic disease. This degree does not lead to professional licensure as a dietitian/nutritionist. Graduates are qualified for careers in the biotechnology field, pharmaceutical and/or food industries, government laboratories, and the health science communications field. Graduates often continue on to graduate studies preparing for careers in research, medicine, and dentistry, or as specialists in nutrition.
Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements", in this publication for prerequisites and minimum credit requirements.

Academic Advising Coordinator: Professor Kristine Koski
School of Dietetics and Human Nutrition
Macdonald-Stewart Building, Room 2-039
Telephone: 514-398-7840

**Required Courses (60 credits)**
All required courses must be passed with a minimum grade of C.

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<td>ANSC 323</td>
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<td>Introduction to Food Science</td>
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<td>FDSC 305</td>
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<td>Food Fundamentals</td>
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<td>3</td>
<td>Nutrition Through Life</td>
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<td>NUTR 344</td>
<td>4</td>
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<tr>
<td>NUTR 450</td>
<td>3</td>
<td>Research Methods: Human Nutrition</td>
</tr>
<tr>
<td>NUTR 512</td>
<td>3</td>
<td>Herbs, Foods and Phytochemicals</td>
</tr>
<tr>
<td>NUTR 551</td>
<td>3</td>
<td>Analysis of Nutrition Data</td>
</tr>
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**Complementary Courses (15 credits)**
15 credits of complementary courses are selected as follows:

3 credits, one of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
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<td>NUTR 307</td>
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<td>Human Nutrition</td>
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At least 3 credits from the following:

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<tr>
<th>Course</th>
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<th>Title</th>
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<tbody>
<tr>
<td>ANSC 560</td>
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<td>NUTR 420</td>
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<td>Toxicology and Health Risks</td>
</tr>
<tr>
<td>NUTR 501</td>
<td>3</td>
<td>Nutrition in Developing Countries</td>
</tr>
<tr>
<td>NUTR 503</td>
<td>3</td>
<td>Bioenergetics and the Lifespan</td>
</tr>
<tr>
<td>NUTR 511</td>
<td>3</td>
<td>Nutrition and Behaviour</td>
</tr>
<tr>
<td>NUTR 545</td>
<td>5</td>
<td>Clinical Nutrition 2</td>
</tr>
</tbody>
</table>
At least 9 credits from the following courses:

ANAT 262 (3) Introductory Molecular and Cell Biology
ANSC 324 (3) Developmental Biology and Reproduction
ANSC 400 (3) Eukaryotic Cells and Viruses
ANSC 420 (3) Animal Biotechnology
ANSC 506 (3) Advanced Animal Biotechnology
ANSC 551 (3) Carbohydrate and Lipid Metabolism
ANSC 552 (3) Protein Metabolism and Nutrition
BINF 301 (3) Introduction to Bioinformatics
BIOC 312 (3) Biochemistry of Macromolecules
BIOL 300 (3) Molecular Biology of the Gene
BIOL 301 (4) Cell and Molecular Laboratory
BTEC 535 (3) Functional Genomics in Model Organisms
EXMD 401 (3) Physiology and Biochemistry Endocrine Systems
EXMD 502 (3) Advanced Endocrinology 01
EXMD 503 (3) Advanced Endocrinology 02
MICR 341 (3) Mechanisms of Pathogenicity
MIMM 314 (3) Immunology
NUTR 430 (3) Directed Studies: Dietetics and Nutrition 1
PARA 438 (3) Immunology

Elective Courses (15 credits)

15 credits of electives are taken to meet the minimum credit requirement for the degree. A reciprocal agreement allows all students to take a limited number of electives at any Quebec university. With prior approval, students can take electives at any Canadian or international university.

Revision, August 2011. End of revision.

2.7.5.9 Bachelor of Science (Nutritional Sciences) (B.Sc.(Nutr.Sc.)) – Major Nutrition – Sports Nutrition (90 credits)

Revision, August 2011. Start of revision.

This Major offers a core emphasis on the scientific fundamentals of nutrition and metabolism throughout the lifespan from the molecular to the organismal level. The concentration in sports nutrition integrates the influence of exercise and physical activity on health and chronic disease prevention. This degree does not lead to professional licensure as a dietitian/nutritionist. Graduates are qualified for careers in the biotechnology field, pharmaceutical and/or food industries, government laboratories, and the health science communications field. Graduates often continue on to graduate studies preparing for careers in research, medicine, and dentistry, or as specialists in nutrition.

Refer to "Faculty Information and Regulations" > "Minimum Credit Requirements", in this publication for prerequisites and minimum credit requirements.

Academic Advising Coordinator: Professor Kristine Koski
School of Dietetics and Human Nutrition
Macdonald-Stewart Building, Room 2-039
Telephone: 514-398-7840

Required Courses (60 credits)

All required courses must be passed with a minimum grade of C.

AEMA 310 (3) Statistical Methods 1
ANSC 234 (3) Biochemistry 2
ANSC 323 (3) Mammalian Physiology
ANSC 424 (3) Metabolic Endocrinology
<table>
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<td>Introduction to Food Science</td>
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<td>FDSC 251</td>
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<td>FDSC 305</td>
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<td>Food Chemistry 2</td>
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<td>LSCI 211</td>
<td>3</td>
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<td>LSCI 230</td>
<td>3</td>
<td>Introductory Microbiology</td>
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<td>NUTR 207</td>
<td>3</td>
<td>Nutrition and Health</td>
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<td>NUTR 214</td>
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<td>Food Fundamentals</td>
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<td>NUTR 337</td>
<td>3</td>
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<td>NUTR 344</td>
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<td>NUTR 450</td>
<td>3</td>
<td>Research Methods: Human Nutrition</td>
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<td>NUTR 503</td>
<td>3</td>
<td>Bioenergetics and the Lifespan</td>
</tr>
<tr>
<td>NUTR 512</td>
<td>3</td>
<td>Herbs, Foods and Phytochemicals</td>
</tr>
<tr>
<td>NUTR 551</td>
<td>3</td>
<td>Analysis of Nutrition Data</td>
</tr>
</tbody>
</table>

**Complementary Courses (15 credits)**

15 credits of complementary courses are selected as follows:

3 credits, one of the following courses:

- ANSC 330 (3) Fundamentals of Nutrition
- NUTR 307 (3) Human Nutrition

At least 3 credits from the following:

- ANSC 560 (3) Biology of Lactation
- NUTR 420 (3) Toxicology and Health Risks
- NUTR 501 (3) Nutrition in Developing Countries
- NUTR 511 (3) Nutrition and Behaviour
- NUTR 545 (5) Clinical Nutrition 2

At least 9 credits from:

- ANAT 214 (3) Systemic Human Anatomy
- EDKP 330 (3) Physical Activity and Health
- EDKP 395 (3) Exercise Physiology
- EDKP 444 (3) Ergonomics
- EDKP 445 (3) Exercise Metabolism
- EDKP 446 (3) Physical Activity and Ageing
- EDKP 448 (3) Exercise and Health Psychology
- EDKP 449 (3) Exercise Pathophysiology 2
- EDKP 485 (3) Exercise Pathophysiology 1
- EDKP 542 (3) Environmental Exercise Physiology
- NUTR 430 (3) Directed Studies: Dietetics and Nutrition 1
Electives (15 credits)
15 credits of electives are taken to meet the minimum credit requirement for the degree. Reciprocal agreement allows all students to take a limited number of electives at any Quebec university. With prior approval, students can take electives at any Canadian or international university.

Revision, August 2011. End of revision.

2.7.5.10 Bachelor of Science (Nutritional Sciences) – Related Programs
2.7.5.10.1 Minor in Human Nutrition
Detailed information on this Minor can be found under section 2.7.6.8: Minor Human Nutrition (24 credits) in this publication.

2.7.5.10.2 Concurrent Bachelor of Science in Food Science – B.Sc.(F.Sc.) and Bachelor of Science in Nutritional Sciences – B.Sc.(Nutr.Sc.) – Food Science/Nutritional Science Major
Detailed information on this concurrent program can be found under section 2.7.4.3: Concurrent Bachelor of Science in Food Science (B.Sc.(F.Sc.)) and Bachelor of Science Nutritional Sciences (B.Sc.(Nutr.Sc.)) - Food Science/Nutritional Science Major (122 credits) in this publication.

2.7.6 Minor Programs
The Faculty of Agricultural and Environmental Sciences offers a number of minor programs.
For registration information, see section 2.5.5.8.1: Procedures for Minor Programs.

2.7.6.1 Minor in Environment (McGill School of Environment)
For information about the Minor in Environment, consult McGill School of Environment > Minor in Environment.

2.7.6.2 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Minor Agricultural Economics (24 credits)
The Minor in Agricultural Economics will complement a student's education in four ways. First, as a social science, Economics will provide an alternative perspective for students in the Faculty. Second, the Minor will provide an excellent foundation of the workings of the economy at large. Third, it will aid students in understanding the business environment surrounding the agri-food industry. Finally, it will challenge students to analyze the interaction between the agricultural economy and the natural resource base.
Minor Coordinator: Professor John Henning
Macdonald-Stewart Building, Room 3-038
Telephone: 514-398-7826

Required Courses (12 credits)

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<tr>
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<td>AGEC 201</td>
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<td>Principles of Macroeconomics</td>
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<td>AGEC 330</td>
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<td>Agriculture and Food Markets</td>
</tr>
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<td>AGEC 333</td>
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<td>Resource Economics</td>
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Complementary Courses (12 credits)
12 credits of complementary courses selected from:

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<tr>
<td>AGEC 231</td>
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<td>AGEC 242</td>
<td>3</td>
<td>Management Theories and Practices</td>
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<td>AGEC 320</td>
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<td>Intermediate Microeconomic Theory</td>
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<td>AGEC 332</td>
<td>3</td>
<td>Farm Management and Finance</td>
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<td>AGEC 343</td>
<td>3</td>
<td>Accounting and Cost Control</td>
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<tr>
<td>AGEC 425</td>
<td>3</td>
<td>Applied Econometrics</td>
</tr>
<tr>
<td>AGEC 430</td>
<td>3</td>
<td>Agriculture, Food and Resource Policy</td>
</tr>
<tr>
<td>AGEC 442</td>
<td>3</td>
<td>Economics of International Agricultural Development</td>
</tr>
</tbody>
</table>
The Minor Animal Biology is intended for students who wish to further their studies in the basic biology of large mammals and birds. Successful completion of the program should provide students with a sound background in the field of biomedical studies and the use of animal models. It should also qualify...
students to apply to most veterinary colleges in North America, to study in a variety of postgraduate biology programs, and to work in many laboratory settings.

This Minor is not open to students in B.Sc.(Ag.Env.Sc.) programs. These students may register for the specialization in Animal Biology.

Academic Adviser: Professor Roger Cue
Department of Animal Science
Telephone: 514-398-7805

Required Courses (15 credits)

<table>
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<tr>
<th>Course Code</th>
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<td>Immunology</td>
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Complementary Courses (9 credits)

A minimum of 9 credits selected from the following list:

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<td>ANSC 326</td>
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<td>Fundamentals of Nutrition</td>
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<td>ANSC 400</td>
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<td>Eukaryotic Cells and Viruses</td>
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<td>Metabolic Endocrinology</td>
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<td>ANSC 433</td>
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<td>Animal Nutrition</td>
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<td>ANSC 560</td>
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<td>ANSC 565</td>
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<td>Applied Information Systems</td>
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<td>Research Project 1</td>
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2.7.6.5 Minor Animal Health and Disease (24 credits)

The Minor in Animal Health and Disease is offered to students wishing to understand general animal physiology and function, the susceptibility of animals to various diseases, methods for limiting and controlling potential outbreaks, and the resulting implications for the animal, the consumer, and the environment. It is an ideal choice for students who are interested in the care of animals, or in working in laboratories where diseases are being researched. It would also be useful to students who wish to apply to most veterinary colleges in North America.

This Minor is not open to students in B.Sc.(Ag.Env.Sc.) programs. These students may register for the specialization in Animal Health and Disease.

Academic Adviser: Professor Sarah Kimmins
Macdonald-Stewart Building, Room 1-091
Telephone: 514-398-7658

Required Courses (15 credits)

<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>ANSC 323</td>
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<td>MICR 341</td>
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<td>Mechanisms of Pathogenicity</td>
</tr>
<tr>
<td>PARA 438</td>
<td>3</td>
<td>Immunology</td>
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</tbody>
</table>

Complementary Courses (9 credits)

9 credits selected from the following list:
2.7.6.6 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Minor Ecological Agriculture (24 credits)

The Minor Ecological Agriculture is designed to focus on the principles underlying the practice of ecological agriculture and is suitable for students wishing to farm and do extension and government work, and those intending to pursue postgraduate studies in this field.

This Minor can be associated with existing major programs in the Faculty, but in some instances it may require more than 90 credits to meet the requirements of both the Major and the Minor.

Students are advised, during the U1 year, to consult their Major program adviser and the Academic Adviser of the Minor. At the time of registration for the U2 year, students must declare their intent to obtain the Minor. With the agreement of their Major program adviser they must submit their program of courses already taken, and to be taken, to the Academic Adviser of the Minor. The Academic Adviser of the Minor will then certify which courses the student will apply toward the Minor and confirm that the student's program conforms with its requirements.

Academic Adviser: Dr. Caroline Begg
Raymond Building, Room 2-028a
Telephone: 514-398-8749

General Regulations

To obtain a Minor in Ecological Agriculture, students must:

a) Ensure that their academic record at the University includes a C grade or higher in the courses as specified in the course requirements given below.

b) Offer a minimum total of 24 credits from the courses as given below, of which not more than 6 credits may be counted for both the Major and the Minor programs. This restriction does not apply to elective courses in the Major program.

Required Courses (9 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>AGRI 215</td>
<td>3</td>
<td>Agro-Ecosystems Field Course</td>
</tr>
<tr>
<td>AGRI 340</td>
<td>3</td>
<td>Principles of Ecological Agriculture</td>
</tr>
<tr>
<td>RELG 270</td>
<td>3</td>
<td>Religious Ethics and the Environment</td>
</tr>
</tbody>
</table>

Complementary Courses (15 credits)

15 credits chosen from:

* Note: Offered in alternate years.

<table>
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<tr>
<th>Course Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>AGEC 430</td>
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<td>AGRI 310</td>
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<td>Global Issues on Development, Food and Agriculture</td>
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<td>Herbs, Foods and Phytochemicals</td>
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<tr>
<td>PLNT 302</td>
<td>3</td>
<td>Forage Crops and Pastures</td>
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<tr>
<td>PLNT 312*</td>
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<td>Urban Horticulture</td>
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<td>PLNT 426*</td>
<td>3</td>
<td>Plant Ecophysiology</td>
</tr>
<tr>
<td>PLNT 434</td>
<td>3</td>
<td>Weed Biology and Control</td>
</tr>
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</table>
Minor in Environmental Engineering (27 credits)

The Minor program consists of 27 credits in courses that are environment related. By means of a judicious choice of complementary and elective courses, Bioresource Engineering students may obtain this Minor with a minimum of 12 additional credits.

The Environmental Engineering Minor is administered by the Faculty of Engineering, Department of Civil Engineering and Applied Mechanics (see Faculty of Engineering > Environmental Engineering Minor).

Courses available in the Faculty of Agricultural and Environmental Sciences (partial listing):

- BREE 322 Organic Waste Management
- BREE 416 Engineering for Land Development
- BREE 518 Bio-Treatment of Wastes
- MICR 331 Microbial Ecology

Academic Adviser: Professor Shiv Prasher
Macdonald-Stewart Building, Room 1-028
Telephone: 514-398-7775

Minor Human Nutrition (24 credits)

The Minor Human Nutrition is intended to complement a student's primary field of study by providing a focused introduction to the metabolic aspects of human nutrition. It is particularly accessible to students in Biochemistry, Biology, Physiology, Anatomy and Cell Biology, Microbiology and Immunology, Animal Science, or Food Science programs. The completion of 24 credits is required, of which at least 18 must not overlap with the primary program. All courses must be taken in the appropriate sequence and passed with a minimum grade of C. Students may declare their intent to follow the Minor program at the beginning of their U2 year. They must then consult with the academic adviser in the School of Dietetics and Human Nutrition to obtain approval for their course selection. Since some courses may not be offered every year and many have prerequisites, students are cautioned to plan their program in advance.

The Minor program does not carry professional recognition; therefore, it is not suitable for students wishing to become nutritionists or dietitians. However, successful completion may enable students to qualify for many postgraduate nutrition programs.

Note:
Most courses listed at the 300 level and higher have prerequisites. Although instructors may waive prerequisite(s) in some cases, students are urged to prepare their program of study well before their final year.

Academic Adviser: Professor Linda Wykes
Macdonald-Stewart Building, Room 2-042
Telephone: 514-398-7843

Required Courses (6 credits)

- NUTR 337 (3) Nutrition Through Life
- NUTR 450 (3) Research Methods: Human Nutrition

Complementary Courses (18 credits)

18 credits are selected as follows:

3 credits in Biochemistry, one of:
- ANSC 234 (3) Biochemistry 2
- BIOC 311 (3) Metabolic Biochemistry
3 credits in Physiology, one of:

- ANSC 323 (3) Mammalian Physiology
- PHGY 202 (3) Human Physiology: Body Functions
- PHGY 210 (3) Mammalian Physiology 2

3 credits in Nutrition, one of:

- ANSC 330 (3) Fundamentals of Nutrition
- NUTR 307 (3) Human Nutrition

9 credits are selected as follows:

- ANSC 551 (3) Carbohydrate and Lipid Metabolism
- ANSC 552 (3) Protein Metabolism and Nutrition
- NUTR 403 (3) Nutrition in Society
- NUTR 420 (3) Toxicology and Health Risks
- NUTR 436 (2) Nutritional Assessment
- NUTR 501 (3) Nutrition in Developing Countries
- NUTR 512 (3) Herbs, Foods and Phytochemicals
- NUTR 551 (3) Analysis of Nutrition Data
- PATH 300 (3) Human Disease

One of:

- MIMM 314 (3) Immunology
- PARA 438 (3) Immunology

One of:

- NUTR 430 (3) Directed Studies: Dietetics and Nutrition 1
- NUTR 431 (3) Directed Studies: Dietetics and Nutrition 2

2.7.6.9 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Minor International Agriculture (24 credits)

Students enter this Minor because they want to acquire a global understanding of agriculture as a central mechanism to help rural development, alleviate poverty and reach food security, especially in the developing world. This program provides students with coursework and a semester hands-on experience in a developing country (students must cover their costs), meeting locals and attending courses with McGill professors and/or local instructors. The field semester includes developing projects in local communities, observing subsistence agriculture in situ and participating in social activities which contribute to sensitize students to the development challenges that such countries face. What better way to study the practice of agriculture in a tropical setting than by going to a tropical destination? In Africa, or in Panama, or in Barbados! Students will learn about water resources, sustainable development, nutrition, planning and development, and a host of other fascinating topics, allowing them to sharpen their skills for career opportunities ahead.

Minor Adviser: Professor Humberto Monardes
Macdonald-Stewart Building, Room 1-093
Telephone: 514-398-7809

Required Courses (6 credits)

- AGEC 442 (3) Economics of International Agricultural Development
AGRI 411 (3) Global Issues on Development, Food and Agriculture

Complementary Courses (18 credits)
18 credits of complementary courses selected as follows:

3 credits, one of the following:
NRSC 340 (3) Global Perspectives on Food
NUTR 501 (3) Nutrition in Developing Countries
PARA 515 (3) Water, Health and Sanitation

15 credits, select one of the McGill Field Study Semesters listed below:

African Field Study Semester (Winter)
15 credits in African Field Study Semester are selected as follows:
9 credits of courses chosen from the complementary course set offered in the year of participation in the Field Study Semester.
6 credits of required courses as listed below:
GEOG 416 (3) Africa South of the Sahara
NRSC 405 (3) Natural History of East Africa

Barbados Field Study Semester (Fall)
15 credits selected as follows:
AGRI 452 (3) Water Resources in Barbados
AGRI 519 (6) Sustainable Development Plans
URBP 507 (3) Planning and Infrastructure
URBP 520 (3) Globalization: Planning and Change

Barbados Interdisciplinary Tropical Studies Field Semester (Summer)
15 credits selected as follows:
AEBI 421 (3) Tropical Horticultural Ecology
AEBI 423 (3) Sustainable Land Use
AEBI 425 (3) Tropical Energy and Food
AEBI 427 (6) Barbados Interdisciplinary Project

Panama Field Study Semester (Winter)
15 credits selected as follows:
9 credits of required courses
BIOL 553 (3) Neotropical Environments
ENVR 451 (6) Research in Panama

6 credits of complementary courses
Choose one of the following sets:
AGRI 550 (3) Sustained Tropical Agriculture
Environmental History of Latin America (Field) (HIST 510) (3 credits)

OR

Environmental Management 2 (GEOG 404) (3 credits)
Humans in Tropical Environments (GEOG 498) (3 credits)

2.7.7 Post-Baccalaureate Certificate Programs

The Faculty offers the following 30-credit post-baccalaureate certificate programs.

2.7.7.1 Certificate in Ecological Agriculture (30 credits)

This 30-credit certificate program is very similar to the Minor program and is designed to focus on the principles underlying the practice of ecological agriculture. The certificate may be of special interest to professional agrologists who want further training, as well as formal recognition that they have completed a coherent program of courses beyond their B.Sc. studies.

Students holding a B.Sc. in agriculture or a related area are eligible to register for this program provided that they are otherwise acceptable for admission to the University. Students who have completed the Minor or specialization in Ecological Agriculture are not permitted to register for this program.

Academic Adviser: Dr. Caroline Begg
Raymond Building, Room 2-028a
Telephone: 514-398-8749

General Regulations

To obtain a certificate in Ecological Agriculture, students must complete a minimum total of 30 credits from the courses as given below.

Notes:

1. Most courses listed at the 300 level and higher have prerequisites. Although instructors may waive prerequisite(s) in some cases, students are urged to prepare their program of study to ensure that they have met all conditions.

2. Students using AGRI 310 toward the requirements of the Specialization/Minor/Certificate are limited to an experience on farms or other enterprises that are organic, biodynamic, or practising permaculture. The placement must be approved by the academic adviser for the specialization/Minor/certificate.

Required Courses (9 credits)

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Complementary Courses (21 credits)

21 credits chosen from the following, in consultation with the Academic Adviser for Ecological Agriculture.

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<td>ENVB 305</td>
<td>3</td>
<td>Population &amp; Community Ecology</td>
</tr>
<tr>
<td>ENVB 410</td>
<td>3</td>
<td>Ecosystem Ecology</td>
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<td>MICR 331</td>
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</table>
Weed Biology and Control (3) PLNT 434
Plant Ecology (3) PLNT 460
Soils in a Changing Environment (3) SOIL 326
Soil Ecology and Management (3) SOIL 335*
Organic Soil Fertilization (3) SOIL 342
Agroenvironmental Fertilizer Use (3) SOIL 445*
Ethology (3) WILD 311

2.7.7.2 Certificate in Food Science (30 credits)

This 30-credit program will appeal to mature students who have a first degree in a science-related discipline. Students must complete the Introduction to Food Science, Food Microbiology, and Quality Assurance courses, at least three Food Chemistry/Analysis courses, two Processing/Engineering courses, and at least one course in communication skills, ethics, or business skills. Entry to this program is permitted only in September.

Academic Adviser: Professor Hosahalli S. Ramaswamy
Macdonald-Stewart Building, Room 1-038
Telephone: 514-398-7919

Required Course (3 credits)
FDSC 200 (3) Introduction to Food Science

Complementary Courses (27 credits)
27 credits are selected as follows:

9 credits from the following:
FDSC 251 (3) Food Chemistry 1
FDSC 300 (3) Principles of Food Analysis 1
FDSC 305 (3) Food Chemistry 2
FDSC 315 (3) Separation Techniques in Food Analysis 1
FDSC 319 (3) Food Commodities
FDSC 334 (3) Analysis of Food Toxins and Toxicants
FDSC 410 (3) Flavour Chemistry
FDSC 495D1 (1.5) Food Science Seminar
FDSC 495D2 (1.5) Food Science Seminar

6 credits from the following:
BREE 324 (3) Elements of Food Engineering
FDSC 310 (3) Post Harvest Fruit and Vegetable Technology
FDSC 330 (3) Food Processing
FDSC 400 (3) Food Packaging
FDSC 405 (3) Food Product Development
FDSC 425 (3) Principles of Quality Assurance

3 credits from the following:
FDSC 442 (3) Food Microbiology
9 credits from the following:

- **AGRI 510** (3) Professional Practice
- **FDSC 515** (3) Enzyme Thermodynamics/Kinetics
- **FDSC 519** (3) Advanced Food Processing
- **FDSC 520** (3) Biophysical Chemistry of Food
- **FDSC 530** (3) Advanced Analytical Chemistry
- **FDSC 535** (3) Food Biotechnology
- **FDSC 536** (3) Food Traceability
- **FDSC 537** (3) Nutraceutical Chemistry

### Field Studies

**2.7.8 Field Studies**

**2.7.8.1 African Field Study Semester**

The Department of Geography, Faculty of Science, coordinates the 15-credit interdisciplinary African Field Study Semester. For more information, see Field Studies and Study Abroad > African Field Study Semester.

**2.7.8.2 Barbados Field Study Semester**

This program takes place at Bellairs Research Institute in Barbados; it is a full 15-credit program offered each Fall semester. For more information, see Field Studies and Study Abroad > Barbados Field Study Semester.

**2.7.8.3 Barbados Interdisciplinary Tropical Studies Field Semester**

This 15-credit program is offered at the Bellairs Research Institute in Barbados. For more information, see Field Studies and Study Abroad > Barbados Interdisciplinary Tropical Studies Field Semester.

**2.7.8.4 Panama Field Study Semester**

This program is a joint venture between McGill University and the Smithsonian Tropical Research Institute (STRI) in Panama. For more information, see Field Studies and Study Abroad > Panama Field Study Semester.

McGill students are eligible for a Mobility Award; see www.mcgill.ca/studentaid/travelawards for details or contact the Scholarships and Student Aid Office (SSAO) at mobilityaward@mcgill.ca.

### Graduate Programs

Graduate work may be undertaken on the Macdonald Campus, through the Departments of Animal Science, Bioresource Engineering, Food Science and Agricultural Chemistry, Natural Resource Sciences, Plant Science, the Institute of Parasitology, and the School of Dietetics and Human Nutrition.

The advanced courses of study offered lead to the degrees of Master of Science, Master of Science Applied, Doctor of Philosophy, Graduate Certificate in Biotechnology, and Graduate Certificate in Integrated Water Resources Management (IWRM).

Information on these programs and related fellowships is available from the Student Affairs Office, Macdonald Campus of McGill University, 21,111 Lakeshore Road, Laird Hall, Sainte-Anne-de-Bellevue, Quebec, H9X 3V9.

The Graduate and Postdoctoral Studies Programs, Courses and University Regulations publication is available at www.mcgill.ca/study, and full information regarding graduate courses, theses, registration, fellowships, etc., can be accessed at www.mcgill.ca/gps.
2.9 Farm Management and Technology Program

2.9.1 Location

Farm Management and Technology Program
Faculty of Agricultural and Environmental Sciences
Macdonald Campus of McGill University
21,111 Lakeshore Road, Harrison House
Sainte-Anne-de-Bellevue, Quebec H9X 3V9

Telephone: 514-398-7814
Fax: 514-398-7955
Email: fmt.macdonald@mcgill.ca
Website: www.mcgill.ca/fmt

2.9.2 Farm Management and Technology Program Faculty

Director
Peter Enright

Associate Director
Serge Lussier

Faculty Lecturers
Caroline Begg
Christian Molgat
Pascal Thériault
David Wees

2.9.3 Diploma Farm Management Technology

This three-year academic and practical program is offered on the Macdonald campus and taught by the staff of the Faculty of Agricultural and Environmental Sciences of McGill University. The program is funded by the Ministère de l’Agriculture, des Pêcheries et de l’Alimentation du Québec and authorized by the Ministère de l’Éducation, du Loisir et du Sport du Québec (MELS).

The educational goals of the program are:
1. to make our graduates competent in the exercise of their profession;
2. to help the student's integration into professional life;
3. to foster professional mobility;
4. to foster a need for continual development of professional knowledge.

Program Overview

Six academic terms are spent on the Macdonald campus studying a sequence of courses in soil, plant science, animal science, engineering, economics, and management. The first summer of the program includes a 13-week internship on an agricultural enterprise other than the home farm, or an agricultural business where the student learns the many skills and encounters the many problems related to modern commercial agriculture. Students prepare for their Enterprise internship during both academic semesters of Year 1 through two Farm Practice courses.

During the second summer, students are registered in Entrepreneurship 1, which involves agricultural enterprises. The students will be responsible for data collection to be used in their Farm Project and the Nutrient Management Plan 2 when they return to campus for the Fall semester. The internships and practicums will enable the students to relate their academic work to the reality of farming and the agri-food sector.

Finally, courses in English, Français, Humanities, Physical Education, and two complementary courses taken during the program will entitle the student to receive a Diplôme d'études collégiales (DEC) from the MELS. Students will also receive a certification from Macdonald campus stating that they have successfully completed the requirements of the Farm Management and Technology program.

Program Outline
### Administrative Unit

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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<tr>
<td>FMTP 001</td>
<td>1.33</td>
<td>Farm Practice 1 (152-001-MC)</td>
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<td>FMTP 007</td>
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<td>Health and Farm Safety (152-007-MC)</td>
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<td>Farm Practice 2 (152-011-MC)</td>
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<td>FMTP 036</td>
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<td>Enterprise Internship (152-036-MC)</td>
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<td>FMTP 037</td>
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<td>Entrepreneurship 1 (152-037-MC)</td>
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### Bioresource Engineering

<table>
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<td>Soil Preparation (152-003-MC)</td>
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<td>Microcomputing (152-004-MC)</td>
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<td>Machinery Management (152-014-MC)</td>
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<td>Building Maintenance (152-018-MC)</td>
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<td>Tools &amp; Machinery Maintenance (152-019-MC)</td>
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<td>Water and Soil Conservation (152-021-MC)</td>
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<td>Farm Building Planning (152-024-MC)</td>
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<td>Precision Farming (152-027-MC)</td>
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### Agricultural Economics

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<td>Introduction to Economics (152-002-MC)</td>
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### Animal Science

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### English

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<td>Literary Genres (603-102-04)</td>
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<td>FMTP 098</td>
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<td>Français agricole (602-VSG-MC)</td>
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Humanities

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<td>FMTP 087</td>
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- Humanities 1: Knowledge (345-103-04)
- Humanities 2: World Views (345-102-03)
- Humanities 3: Env.& Org. Issues (345-VSH-MC)

Natural Resource Sciences

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<td>FMTP 040</td>
<td>(1.67)</td>
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<tr>
<td>FMTP 041</td>
<td>(1.33)</td>
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- Soil Fertilization (152-009-MC)
- Nutrient Management Plan 1 (152-040-MC)
- Nutrient Management Plan 2 (152-041-MC)

Physical Education

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<th>Course</th>
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<tr>
<td>FMTP 095</td>
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- Physical Activity and Health (109-101-MQ)
- Physical Activity and Effectiveness (109-102-MQ)
- Active Living (109-105-02)

Plant Science

<table>
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<th>Course</th>
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</tr>
<tr>
<td>FMTP 017</td>
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</tr>
</tbody>
</table>

- Agricultural Botany
- Pesticide Use

Elective Production Courses

We offer four production courses in the area of Animal Science and four production courses in the area of Plant Science. Students must take a minimum of two courses in each category for a total of four courses. Students could elect to take more than four courses if they wish, after a discussion with their academic adviser. They must take a minimum of two courses per semester.

Animal Science Category

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>FMTP 028</td>
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<tr>
<td>FMTP 031</td>
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</tr>
</tbody>
</table>

- Dairy Heifer Management (152-028-MC)
- Dairy Herd Management (152-029-MC)
- Swine and Poultry (152-030-MC)
- Beef and Sheep (152-031-MC)

Plant Science Category

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>FMTP 032</td>
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<td>FMTP 045</td>
<td>(2.67)</td>
</tr>
<tr>
<td>FMTP 046</td>
<td>(2.67)</td>
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</tbody>
</table>

- Fruit and Vegetable Crops (152-032-MC)
- Greenhouse Crops (152-033-MC)
- Field Crop Production (152-045-MC)
- Field Crop Management (152-046-MC)

Complementary Courses*

Students must take the following complementary courses to meet the program requirements:

* After consultation with their academic adviser, students can substitute complementary courses taken at another collegial institution. This includes science courses which are required for further studies in a degree program. The cost associated with courses taken elsewhere must be assumed by the students.

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>FMTP 096</td>
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<tr>
<td>FMTP 097</td>
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</table>

- Forests, Forestry and Society (305-032-MC)
- Landscape Design (504-VSG-MC)
Comprehensive Assessment

The objective of this examination is to ensure that students have attained the objectives and standards for each competency in the program. Successful completion of the Comprehensive Assessment is mandatory to obtain the DEC.

The passing grade is 60%. The mark indicating that the student has successfully completed the Comprehensive Assessment will appear on the student's transcript.

English Exit Examination

All students who wish to graduate and obtain the DEC must pass the English Exit Examination that is offered by the MELS. Students must take this examination on the date selected by the MELS.

2.9.4 Entrance Requirements – FMT

1. Students should have a good practical knowledge of farming under eastern Canadian conditions. One year of experience is recommended, but under special conditions a four-month summer season is acceptable.
2. The minimum academic entrance requirements are a Quebec High School Leaving Certificate (Secondary V), or its equivalent and any other academic requirement set by the Ministère de l’Éducation, du Loisir et du Sport (MELS).
3. All candidates for admission must make arrangements to come to the Macdonald campus for an interview prior to admission to the program.
4. Admission to this program is only in the Fall semester.
5. We strongly encourage incoming students to acquire their driver’s permit (both for cars and farm equipment) before coming to Macdonald campus. This is first for safety reasons, given that students work with farm equipment (Soil Preparation) very early on as they arrive at Macdonald. As well, most farmers require their employees and trainees (stagiaires) to drive and possess the appropriate driver’s license.

2.9.5 Registration – FMT

Students in the Farm Management and Technology program must register online using Minerva at www.mcgill.ca/minerva for each semester at McGill.

Note: The University reserves the right to make changes without prior notice to the information contained in this publication, including the alteration of various fees, schedules, conditions of admission and credit requirements, and the revision or cancellation of particular courses. In normal circumstances, individual courses will not be offered with fewer than five registrants.

2.9.6 Academic Rules and Regulations – FMT

The Farm Management and Technology program follows the rules and regulations of McGill University as well as from the Ministère de l’Éducation, du Loisir et du Sport du Québec for the collegial level.

2.9.6.1 Sessional Dates – FMT

The number of teaching and examination days is set by the Ministère de l’Éducation, du Loisir et du Sport du Québec. The sessional dates vary from year to year. At the present time, each semester has 75 teaching days and seven days of exams.

2.9.6.2 Last Day for Withdrawal or Course Additions – FMT

The last day to make course registration changes for Fall term courses is September 20.

The last day to make course registration changes for Winter term courses is February 15.

2.9.6.3 Academic Standing – FMT

Attendance in class is compulsory. Students with attendance of less than 80% may not be permitted to write examinations.

Examinations and other work in courses will be marked according to the percentage system. The minimum passing mark in a course is 60%.

When a student’s cumulative percent average (CPA) or semestrial percent average (SPA) first drops below 60%, or they fail four or more courses in a semester, withdrawal is advised. Students who choose to remain in the program are on probation.

Students on probation are normally permitted to register for no more than 10 credits per semester. They are not permitted to be on probation for more than one semester unless they obtain an SPA of 70% or higher.

Students who do not raise their CPA to 60% (or obtain an SPA of 70%) while on probation are not permitted to continue. They are required to withdraw from the program for one year. If, after this period, students wish to be readmitted, they must apply in writing to the Director of the program.
2.9.6.4 **Handbook on Student Rights and Responsibilities**

This *Handbook* is a compendium of regulations and policies governing student rights and responsibilities at McGill University. It is published jointly by the Dean of Students' Office and the Secretariat. A copy of the *Handbook* can be found at [www.mcgill.ca/secretariat/policies/students](http://www.mcgill.ca/secretariat/policies/students) or obtained from the Student Affairs Office or the Student Services Centre on the Macdonald campus.

2.9.6.5 **Institutional Policy on the Evaluation of Student Achievement – FMT**

The policy has the following objectives:

- to establish and explain the principles followed in evaluating student learning;
- to describe the means of translating these principles into practice and to establish the required procedures;
- to articulate the appropriate responsibilities of students, instructors, departments, and academic administrators;
- to account to students, parents, universities, and employers for the standards of learning at the campus;
- to create an environment of awareness and free discussion of pedagogical concerns within all segments of the campus community;
- to provide information that will allow students to more fully understand and participate in the educational process;
- to provide the framework within which instructors and academic administrators can exercise their professional judgment in a competent, just, and coherent fashion.

Copies are available in the Library and students are informed of it at registration.

2.9.7 **Fees and Expenses – FMT**

2.9.7.1 **Fees**

Tuition fees for all full-time students who are eligible for the Farm Management and Technology program are paid by the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec. Student Services and Student Societies' fees, as well as course material fees, will be charged according to the schedule in effect for all Macdonald campus students. At the time of publishing, the fees* were $841.10 for the Fall semester, and $680.67 for the Winter semester.

* 2010-11 fees, subject to change without notice.

2.9.7.2 **Textbooks and Supplies**

The cost of textbooks and supplies is estimated at $200.00 per semester.

2.9.7.3 **Financial Assistance**

In-Course Financial Aid (including loans and bursaries) is available to full-time students on the basis of demonstrated financial need; however, it is recommended that all applicants apply for the maximum government student assistance program for which they are eligible. Students may apply for In-Course Financial Aid through the *Financial Aid & Awards Menu* on Minerva and will then be asked to make an appointment with the Loan Administrator who visits the Student Services Centre, Macdonald campus, every Wednesday to meet with students with financial difficulties. For more information, see *University Regulations and Resources > Scholarships and Student Aid*, or contact the Student Services Centre at 514-398-7992.

2.9.8 **Residence Accommodation – FMT**

Laird Hall is a co-educational residence with a capacity of 250 students. It accommodates students in double and single rooms. Each floor includes shared washrooms, a fully-equipped kitchen, a television lounge, and a laundry room. For more information, refer to *University Regulations and Resources > Residential Facilities > University Residences – Macdonald Campus*; [www.mcgill.ca/macdonald-residences](http://www.mcgill.ca/macdonald-residences) or email residences.macdonald@mcgill.ca.

2.10 **Department of Animal Science**

2.10.1 **Location**

Macdonald Stewart Building, Room MS1-084  
Telephone: 514-398-7794  
Fax: 514-398-7964  
Email: animal.science@mcgill.ca  
Website: [www.mcgill.ca/animal](http://www.mcgill.ca/animal)
2.10.2 About the Department of Animal Science

There are excellent programs available for those students interested in the study of animal science at the undergraduate level. Whether students are interested in the improvement of livestock production from the point of view of nutrition, breeding and reproduction, or the study of animals in a health context, or even the biotechnology aspects that provide a basis for further laboratory research and an opening to animal models and their impact on human health and disease, there is a specialization that will appeal to those needs.

The Department of Animal Science plays a crucial role in the offering of four important specializations:

- Animal Biology
- Animal Health and Disease
- Animal Production
- International Agriculture

Each of these specializations must be taken within the context of a major, depending on the orientation of a student towards animal production management, animal biotechnology, further studies in animal health, international studies, and/or graduate studies.

A student with an interest in animals, who wishes to become a professional agrologist (a member of the Ordre des agronomes du Québec), should register in the Agro-Environmental Sciences Major and take the specialization in Animal Production (as well as the obligatory specialization in Professional Agrology).

2.10.3 Department of Animal Science Faculty

<table>
<thead>
<tr>
<th>Chair</th>
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<tbody>
<tr>
<td>Kevin M. Wade</td>
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<table>
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<tr>
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<tbody>
<tr>
<td>Roger B. Buckland</td>
</tr>
<tr>
<td>Eduardo R. Chavez</td>
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<tr>
<td>Eugene Donefer</td>
</tr>
<tr>
<td>Bruce R. Downey</td>
</tr>
<tr>
<td>Urs Kuhnlein</td>
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<tr>
<td>John E. Moxley</td>
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<td>Sherman Touchburn</td>
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<table>
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<tbody>
<tr>
<td>J. Flannan Hayes</td>
</tr>
<tr>
<td>Xin Zhao (James McGill Professor)</td>
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<tr>
<th>Associate Professors</th>
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<tbody>
<tr>
<td>Vilceu Bordignon</td>
</tr>
<tr>
<td>Roger I. Cue</td>
</tr>
<tr>
<td>Humberto G. Monardes</td>
</tr>
<tr>
<td>Arif Mustafa</td>
</tr>
<tr>
<td>Leroy E. Phillip</td>
</tr>
<tr>
<td>Kevin Wade</td>
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<td>David Zadworny</td>
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<table>
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<tbody>
<tr>
<td>Martin Chénier</td>
</tr>
<tr>
<td>Raj Duggavathi</td>
</tr>
<tr>
<td>Sarah Kimmins</td>
</tr>
</tbody>
</table>
Adjunct Professors

Hernan Baldassarre
Pierre Lacasse
Daniel Lefebvre
Bruce Murphy

2.11 Department of Bioresource Engineering

2.11.1 Location

Macdonald Stewart Building, Room MS1-027
McGill University, Macdonald Campus
2111 Lakeshore Road
Sainte-Anne-de-Bellevue, Quebec H9X 3V9
Canada

Telephone: 514-398-7773
Fax: 514-398-8387
Email: shiv.prasher@mcgill.ca
Website: www.mcgill.ca/bioeng

2.11.2 About the Department of Bioresource Engineering

Bioresource Engineering is an interdisciplinary program that integrates engineering, design, and the biological sciences. It is a unique profession that applies engineering principles to the enhancement and sustainability of the world’s natural resources. Bioresource engineers seek solutions to problems that involve plants, animals, and the environment. Bioresource Engineering includes the design, construction, operation, maintenance, remediation, and upgrading of systems that contain biological components. This also includes the design of many of the technological constructions that are part of such systems. Thus, Bioresource Engineering includes quite a few sub-disciplines, which are linked because of their biological orientation.

2.11.3 Department of Bioresource Engineering Faculty

Chair
Shiv O. Prasher

Emeritus Professors

Robert S. Broughton
Robert Kok

Professors

Suzelle Barrington
Chandra Madramootoo (James McGill Professor)
Edward McKyes
Shiv O. Prasher (James McGill Professor)
G.S. Vijaya Raghavan (James McGill Professor)

Associate Professors

Viacheslav Adamchuk
Michael O. Ngadi (William Dawson Scholar)
Assistant Professors
Jan Adamowski
Grant Clark
Mark Lefsrud
Valérie Orsat

Adjunct Professors
Joyce Boye
Young Choi
Murray Clamen
Aleksandra Drizo
Samuel Gameda
Serge Guiot
Pierre Jutras
Stephen Light
Jose Martinez
Philippe Savoie
Boris Tartakovsky
Clément Vigneault

Faculty Lecturers
Alice Cherestes
Marcia Knutt

2.12 Department of Food Science and Agricultural Chemistry

2.12.1 Location
Macdonald-Stewart Building, Room MS1-034
McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, Quebec H9X 3V9
Canada
Telephone: 514-398-7898
Fax: 514-398-7977
Email: foodscience@mcgill.ca
Website: www.mcgill.ca/foodscience

2.12.2 About the Department of Food Science

Food Science is a multidisciplinary field involving chemistry, biochemistry, nutrition, microbiology, and processing that gives students the scientific knowledge to solve real problems associated with the many facets of the food system. Food Science is still a relatively new and growing discipline, brought about mainly as a response to the social changes taking place in North America and other parts of the developed world. The current trend toward merger between food and pharmaceutical industries to produce the next generation of new food products such as functional foods and nutraceuticals is the biggest challenge facing the discipline of Food Science today. You can be part of it. The programs offered are: B.Sc. Food Science (Food Chemistry or Food Science option) and Concurrent degree, which includes B.Sc. Food Science/B.Sc. Nutritional Sciences. For more information on these programs, see section 2.7.4: Bachelor of Science (Food Science) - B.Sc.(F.Sc.).
2.12.3 Department of Food Science and Agricultural Chemistry Faculty

Revision, August 2011. Start of revision.

Chair
Varoujan Yaylayan

Revision, August 2011. End of revision.

Professors
Inteaz Alli
William D. Marshall
Hosahalli S. Ramaswamy
Frederik R. van de Voort

Associate Professors
Ashraf A. Ismail
Selim Kermasha
Benjamin K. Simpson
Varoujan Yaylayan

Assistant Professors
Martin Chénier
Salwa Karboune

2.13 Department of Natural Resource Sciences

2.13.1 Location

Macdonald-Stewart Building, Room MS3-040
McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, Quebec H9X 3V9
Canada

Telephone: 514-398-7890
Fax: 514-398-7990
Email: info@nrs.mcgill.ca
Website: www.mcgill.ca/nrs

2.13.2 About the Department of Natural Resource Sciences

Our environment is comprised of many interacting components: interactions between the earth's atmosphere and forests or crops, between plants and other organisms in the soil, between soil properties and nutrients available to plants, between vegetation and the wildlife it supports, between ecological communities on the land and those of the rivers and lakes nearby, between microbial organisms and food, between insects, plants and animals, between human activities such as agriculture, forestry, and industrial development, and natural ecological processes. In turn, all these processes are greatly affected by the actions of governments that rely primarily on feedback from societal and industrial groups, economists, and policy experts to provide guidelines for the management of our natural resources.

The courses and academic programs offered by the Department of Natural Resource Sciences allow students to explore interactions among the components of terrestrial and aquatic ecosystems, and governance through the development of a strong, interdisciplinary background in fundamental, applied, and social sciences.
2.13.3 Department of Natural Resource Sciences Faculty

Chair
Benoît Côté

Emeritus Professors
Nayana N. Barthakur
Edmund Idziak
Angus F. Mackenzie
Robert A. MacLeod
Peter H. Schuepp
Robin K. Stewart

Professors
David M. Bird
Peter Brown (joint appt. with Geography and McGill School of Environment)
James W. Fyles (Tomlinson Professor of Forest Ecology)
William H. Hendershot

Associate Professors
Christopher Buddle
Benoît Côté
Mark A. Curtis
Brian T. Driscoll
Gary B. Dunphy
John Henning
Murray Humphries
David J. Lewis
Ian Strachan
Paul Thomassin
Joann Whalen
Terry A. Wheeler
Lyle Whyte

Assistant Professors
Elena Bennett (joint appt. with McGill School of Environment)
Gordon Hickey
Nicolas Kosoy (joint appt. with McGill School of Environment)
Anwar Naseem
Christopher Solomon

Curators
Stephanie Boucher
Christina Idziak
**Associate Members**

Colin A. Chapman (*Anthropology*)
Lauren J. Chapman (*Biology*)
David Green (*Redpath Museum*)
William D. Marshall (*Dept. of Food Science and Agricultural Chemistry*)
Marilyn Scott (*Institute of Parasitology*)
Donald L. Smith (*Dept. of Plant Science*)

**Adjunct Professors**

Denis Angers
Guy Boivin
Michel Bouchard
Kimberly Fernie
Charles W. Greer
Daniel Houle
Jean-Pierre Savard
Elwin G. Smith
Geoffrey Sunahara
Charles Vincent
Frederick G. Whoriskey

## 2.14 Department of Plant Science

### 2.14.1 Location

Raymond Building, Room R2-019
McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, Quebec H9X 3V9
Canada

Telephone: 514-398-7851
Fax: 514-398-7897
Email: plant.science@mcgill.ca
Website: [www.mcgill.ca/plant](http://www.mcgill.ca/plant)

### 2.14.2 About the Department of Plant Science

Our understanding of biological systems has advanced exponentially during the 20th century, and technological developments now allow us to pose questions that simply could not be asked a few decades ago. We also live at a time of great challenges: the human population is now close to 7 billion and continues to rise at an alarming rate, the climate is changing, worldwide energy availability is going down, quality freshwater is getting scarce, biodiversity is disappearing, and a number of wild habitats are threatened by human activities.

Plant scientists have a crucial role to play in solving several of these problems. How can we keep feeding the growing population with quality food, while the resources to do so are scarcer than ever? How will plants react to a changing climate? How can we design effective conservation strategies to preserve biodiversity? The challenge of using the knowledge accumulated in the field of biology to answer these questions falls in great part to plant scientists.

The Department of Plant Science contributes to several undergraduate programs that will train tomorrow’s agrologists, ecologists, botanists, and biotechnologists. These include specializations in Ecological Agriculture, Plant Biology, Plant Production, and also the Environmetrics and Food Production and Environment Domains of the McGill School of the Environment. See related program information under section 2.7.2: *Bachelor of Science (Agricultural and Environmental Sciences)* – *B.Sc.(Ag.Env.Sc.)*.
### Department of Plant Science Faculty

**Chair**

Philippe Seguin

**Emeritus Professors**

Deborah Buszard  
Ralph H. Estey  
William F. Grant

**Professors**

Pierre Dutilleul  
Donald L. Smith  
Alan K. Watson

**Associate Professors**

Jacqueline C. Bede  
Sylvie de Blois  
Danielle J. Donnelly  
Suha Jabaji  
Ajjamada C. Kushalappa  
Philippe Seguin  
Katrine A. Stewart (*post-retirement*)  
Martina V. Stromvik  
Marcia J. Waterway

**Assistant Professors**

Jean-Benoit Charron  
Jaswinder Singh

**Faculty Lecturers**

Caroline Begg  
Serge Lussier  
David Wees

**Associate Members**

Gregory Brown (*Department of Biology*)  
Timothy A. Johns (*School of Dietetics and Human Nutrition*)

**Adjunct Professors**

Annick Bertrand  
Marc Fortin  
Sylvie Jenni  
Shahrokh Khanizadeh
2.15 School of Dietetics and Human Nutrition

2.15.1 Location

Macdonald Stewart Building, Room MS2-039
McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, Quebec H9X 3V9
Canada

Telephone: 514-398-7840
Fax: 514-398-7739
Email: nutrition.dietetics@mcgill.ca
Website: www.mcgill.ca/dietetics

2.15.2 About the School of Dietetics and Human Nutrition

Health and well-being of individuals in relation to food choices and physiological status prevails as the unifying theme of the programs in the School of Dietetics and Human Nutrition. The availability of food, normal metabolism and clinical nutrition, community nutrition at the local and international level, the evaluation of nutritional products and their use in nutrition, and the communication of information about food and health form the core of academic programs.

2.15.3 School of Dietetics and Human Nutrition Faculty

**Director**

Kristine G. Koski

**Professor Emerita**

Harriet V. Kuhnlein

**Professors**

Luis B. Agellon
Timothy A. Johns

**Associate Professors**

Grace Egeland (*Canada Research Chair*)
Katherine Gray-Donald
Kristine G. Koski
Stan Kubow
Louise Thibault
Hope Weiler (*Canada Research Chair*)
Linda Wykes (*William Dawson Scholar*)
Grace S. Marquis (*Canada Research Chair*)

**Lecturers**

Peter Bender (PT)
Lynda Fraser (PT)
Mary Hendrickson
Linda Jacobs Starkey
Maureen Rose
### Lecturers
- Joane Routhier
- Sandy Phillips
- Hugues Plourde
- TBA

### Adjunct Professors
- Laurie H.M. Chan
- Kevin A. Cockell

### Cross-Appointed Staff
- Food Science and Agricultural Chemistry: Selim Kermasha
- Medicine: Ross Andersen, Louis Beaumier, Franco Carli, Stephanie Chevalier, Réjeanne Gougeon, L. John Hoffer, Larry Lands, Errol Marliss, José Morais, Celia Rodd, Thomas Schricker, Jean-François Yale, Ralph Lattermann
- Parasitology: Marilyn E. Scott
- MUHC: Sonya Page

## 2.16 Institute of Parasitology

### 2.16.1 Location
Institute of Parasitology
Parasitology Building
McGill University, Macdonald Campus
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, Quebec H9X 3V9
Canada

Telephone: 514-398-7722
Fax: 514-398-7857
Email: graduate.parasitology@mcgill.ca
Website: [www.mcgill.ca/parasitology](http://www.mcgill.ca/parasitology)

### 2.16.2 Institute of Parasitology Faculty

#### Director
Timothy Geary

#### Professors
- John Dalton
- Timothy Geary
- Roger Prichard

#### Associate Professors
- Robin Beech
- Elias Georges
- Armando Jardim
- Paula Ribeiro
2.17 Instructional Staff

Adamchuck, Viacheslav I., B.S. (National Agricultural Univ. of Ukraine), M.S., Ph.D. (Purd.); Associate Professor of Bioresource Engineering
Adamowski, Jan; B.Eng. (RMC), M.Phil. (Camb./MIT), M.B.A. (Warsaw/HEC Paris/London Business School/Norwegian School of Economics and Business Administration), Ph.D. (Warsaw); Assistant Professor of Bioresource Engineering
Agellon, Luis B.; B.Sc., Ph.D. (McM.); Professor of Human Nutrition (Canada Research Chair)
Alli, Inteaz; B.Sc. (Guyana), M.Sc., Ph.D. (McG.); Professor of Food Science and Agricultural Chemistry
Barrington, Suzelle; B.Sc. (Agr.Eng.), Ph.D. (McG.); Professor of Bioresource Engineering
Bede, Jacqueline; B.Sc. (Calg.), M.Sc., Ph.D. (Tor.); Associate Professor of Plant Science
Beech, Robin N.; B.Sc. (Nott.), Ph.D. (Edin.); Associate Professor of Parasitology
Begg, Caroline; B.Sc. (Agr.)(McG.), M.Sc. (Sask.), Ph.D. (McG.); Faculty Lecturer, Department of Plant Science
Bennett, Elena; B.A. (Oberlin), M.Sc., Ph.D. (Wisc.); Assistant Professor of Ecosystem Ecology and McGill School of Environment
Bird, David M.; B.Sc. (Guelph), M.Sc., Ph.D. (McG.); Fellow A.O.U., Professor of Wildlife Biology and Director, Avian Science and Conservation Centre
Bordignon, Vilceu; Ag.Tec. (EAPC), M.Sc., D.V.M. (Universidade da Regiao da Campanha (Brazil)), Ph.D. (Montr.); Associate Professor of Animal Science
Brown, Peter G.; B.A. (Haver.), M.A., Ph.D. (Col.); Professor of Natural Resource Sciences (joint appoint. with Geography and McGill School of Environment)
Buddle, Christopher; B.Sc. (Guelph), Ph.D. (Alta.); Associate Professor of Forest Insect Ecology
Charron, Jean-Benoit; B.Sc. (Montr.), M.Sc., Ph.D. (UQAM); Assistant Professor of Plant Science
Chenier, Martin R.; B.Sc., M.Sc. (Laval), Ph.D. (McG.); Assistant Professor of Food Safety
Cherestes, Alice; B.A., M.A., Ph.D. (CUNY); Faculty Lecturer, Faculty of Agricultural and Environmental Sciences
Clark, Grant; B.Sc. (Agr.Eng.) (Alta.), Ph.D. (McG.); Assistant Professor of Bioresource Engineering
Côté, Benoit; B.Sc., Ph.D. (Laval); Associate Professor of Woodland Resources, Chair of Department of Natural Resource Sciences
Cue, Roger I.; B.Sc. (Newcastle, UK), Ph.D. (Edin.); Associate Professor of Animal Science
Dalton, John P.; B.Sc., Ph.D. (Dublin); Professor of Parasitology (Canada Research Chair)
de Blois, Sylvie; B.Sc. (Agr.)(McG.), M.Sc., Ph.D. (Montr.); Associate Professor of Plant Science and McGill School of Environment
Donnelly, Danielle J.; B.Sc.(Agr.) (McG.), M.Sc.(Br. Col.), Ph.D.(S. Fraser); Associate Professor of Plant Science
Driscoll, Brian T.; B.Sc., Ph.D.(McM.); Associate Professor of Microbiology
Duggavathi, Rajesha; B.V.Sc., M.V.Sc.(Univ. of Agricultural Sciences, Bangalore), Ph.D.(Sask.); Assistant Professor of Animal Science
Dunphy, Gary B.; B.Sc.(New Br.), M.Sc., Ph.D.(Nfld.); Associate Professor of Entomology
Dutilleul, Pierre R.; B.Sc., Ph.D.(Belgium); Professor of Statistics
Dzierszinski, Florence; Bacc. (Université de Lille I), M.Sc.(Université de Compiègne/Université de Lille I), Ph.D.(Université de Lille I); Assistant Professor of Parasitology (Canada Research Chair)
Egeland-Hovda, Grace M.; B.A.(Luther), Ph.D.(Pitt.); Associate Professor of Human Nutrition (Canada Research Chair)
Ellyett, William R.; B.A. (Sir G. Wms.), B.Ed.(P.E.) (McG.); Faculty Lecturer (PT), Farm Management and Technology Program and Director of Athletics
Enright, Peter; B.Sc.(Agr.Eng.), M.Sc.(McG.); Faculty Lecturer, Director, Farm Management and Technology Program
Fyles, James W.; B.Sc., M.Sc.(Vic., BC), Ph.D.(Alta.); Professor of Woodland Resources (Tomlinson Professor of Forest Ecology)
Geary, Timothy G.; B.Sc.(Notre Dame), Ph.D.(Mich.); Professor of Parasitology, Director, Institute of Parasitology, (Canada Research Chair in Parasite Biotechnology)
Georges, Elias; B.Sc., Ph.D.(McG.); Associate Professor of Parasitology
Hayes, J. Flannan; B.Agr.Sc., B.Sc.(McG.); Associate Professor of Human Nutrition
Hendershot, William H.; B.Sc.(Br. Col.), M.Sc.(McG.); Faculty Lecturer (PT), Farm Management and Technology Program and Director of Athletics
Hendrickson-Nelson, Mary; B.A.(College of St. Benedict), B.Sc.(Minn.), M.Sc.(Colo. St.); Faculty Lecturer (Stage), School of Dietetics and Human Nutrition
Henning, John C.; B.Sc., Ph.D.(Guelph); Associate Professor of Agricultural Economics
Hickey, Gordon M.; B.F.Sc.(Melb.), Ph.D.(Br. Col.); Assistant Professor of Natural Resource Sciences
Humphries, Murray; B.Sc.(Manit.), B.Agr.Sc., M.Agr.Sc.(Dublin), Ph.D.(N. Carolina St.); Professor of Animal Science
Ismail, Ashraf A.; B.Sc., Ph.D.(McG.); Associate Professor of Food Science and Agricultural Chemistry
Jacobs Starkey, Linda; B.Sc.(H.Ec.) (Mt. St. Vin.), M.Sc., Ph.D.(McG.), RD, FDC; Faculty Lecturer, School of Dietetics and Human Nutrition
Jardim, Armando; B.Sc., Ph.D.(Vic., BC); Associate Professor of Parasitology
Johns, Timothy A.; B.Sc.(McM.), M.Sc.(Br. Col.), Ph.D.(Mich.); Professor of Human Nutrition
Karboune, Salwa; B.Sc., M.Sc.(Institut Agronomique et Vétérinaire Hassan II), Ph.D.(Univ. de la Mediterranée); Assistant Professor of Food Science
Kermasha, Selim; B.Sc.(Baghdad), D.Sc.(Nancy); Associate Professor of Food Science and Agricultural Chemistry
Kimmins, Sarah; B.Sc.(Dal.), M.Sc.(Nova Scotia Ag.), Ph.D.(Dal.); Assistant Professor of Animal Science
Koski, Kristine G.; B.S., M.S.(Wash.), Ph.D.(Calif., Davis); Associate Professor of Human Nutrition and Director, School of Dietetics and Human Nutrition
Kosoy, Nicolas; B.Sc.(Universidad Simon Bolivar), M.Sc.(Kent), M.Sc.(Universidad Autonoma de Barcelona), Ph.D.(Univ. of Tilburg); Assistant Professor of Environmental and Ecological Economics and McGill School of Environment
Kubow, Stan; B.Sc.(McG.), M.Sc.(Tor.), Ph.D.(Guelph); Associate Professor of Dietetics and Human Nutrition
Kushalappa, Ajjamada C.; B.Sc., M.Sc.(B’lore), Ph.D.(Flor.); Associate Professor of Plant Science
Kultra, Ajay; B.Sc.(Agr.), M.Sc.(Br. Col.), Ph.D.(Flor.); Assistant Professor of Plant Science
Lefsrud, Mark G.; B.S.(Sask.), M.S.(Rutg.), Ph.D.(Tenn.); Assistant Professor of Bioresource Engineering
Lewis, David J.; B.Sc., M.Sc., Ph.D.(Mem.); Associate Dean (Student Affairs) and Associate Professor of Entomology
Lussier, Serge; B.Sc.(Agr.) (McG.); Assistant Director and Faculty Lecturer, Farm Management and Technology Program
Madramootoo, Chandra; B.Sc.(Agr.Eng.), M.Sc., Ph.D.(McG.); P.Eng., Dean (James McGill Professor)
Marquis, Grace S.; B.A.(Ind.), M.Sc.(Mich. St.), Ph.D.(C’nell); Associate Professor of Human Nutrition (Canada Research Chair)
Marshall, William D.; B.Sc.(New Br.), Ph.D.(McM.); Professor of Food Science and Agricultural Chemistry
McKyes, Edward; B.Eng., M.Eng., Ph.D.(McG.), F.C.S.A.E.; Professor of Bioresource Engineering

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Moffat, Donald; B.Ed.(P.E.)(McG.), Grad. Dip. in Sports Admin.(C'dia); Faculty Lecturer (PT), Farm Management and Technology Program and Coordinator Campus Recreation, Athletics and Recreation

Molgat, Christian; B.Sc.(Guelph), B.Sc.(Ott.); Faculty Lecturer, Farm Management and Technology Program

Monardes, Humberto G.; B.Sc.(Concepcion, Chile), M.Sc., Ph.D.(McG.); Associate Professor of Animal Science

Mustafa, Arif F.; B.Sc., M.Sc.(Khartoum), Ph.D.(Sask.); Associate Professor of Animal Science

Naseem, Anwar; B.Sc.(McG.), M.A., M.Sc.(Penn.), Ph.D.(Mich. St.); Assistant Professor of Agricultural Economics

Ngadi, Michael O.; B.Eng.(Nigeria), M.A.Sc., Ph.D.(Nova Scotia TC.); Associate Professor of Bioresource Engineering (William Dawson Scholar)

Orsat, Valerie; B.Sc., M.Sc., Ph.D.(McG.); Assistant Professor of Bioresource Engineering

Phillip, Leroy E.; B.Sc.(Agr.), M.Sc.(McG.), Ph.D.(Guelph); Associate Professor of Animal Science

Phillips, Sandra; B.A.(Qu.), B.Sc.(F.Sc.), M.Sc.(McG.); Faculty Lecturer (Stage), School of Dietetics and Human Nutrition

Plourde, Hugues; B.Sc.(Nutr.Sci.)(McG.), M.Sc.(Nutr.)(Montr.); Faculty Lecturer (Stage), School of Dietetics and Human Nutrition

Prasher, Shiv O.; B.Tech., M.Tech.(Punjab), Ph.D.(Br. Col.); Professor of Bioresource Engineering and Chair of Department (James McGill Professor)

Prichard, Roger K.; B.Sc., Ph.D.(N.S.W.); Professor, Institute of Parasitology (James McGill Professor)

Raghavan, G.S. Vijaya; B.Eng.(Bangalore), M.Sc.(Guelph), Ph.D.(Colo. St.); F.A.S.A.E, F.C.S.A.E., F.A.S.M.E.; Professor of Bioresource Engineering (James McGill Professor)

Ramaswamy, Hosahalli; B.Sc.(Bangalore), M.Sc.(Mysore), M.Sc., Ph.D.(Br. Col.); Professor of Food Science and Agricultural Chemistry

Ribeiro, Paula A.; B.Sc., Ph.D.(York); Associate Professor of Parasitology

Ritter, Heidi; B.Sc., M.Sc.(Nutr.Sci.)(McG.); Faculty Lecturer (Stage), School of Dietetics and Human Nutrition

Rohrbach, Petra; B.Sc.(McG.), Diplom Biology(Heidel.), Dr. rer. Nat,(Deutsches Krebsforschungszentrum); Assistant Professor of Parasitology

Rose, Maureen; B.Sc.(F.Sc.), M.Ed., Ph.D.(McG.); Faculty Lecturer (Stage), School of Dietetics and Human Nutrition

Routhier, Joane; B.Sc.(F.Sc.)(McG.); Faculty Lecturer (Stage), School of Dietetics and Human Nutrition

Salavati, Reza; B.A, M.A.(Calif. St.), Ph.D.(Wesl.); Assistant Professor of Parasitology

Scott, Marilyn E.; B.Sc.(New Br.), Ph.D.(McG.); Associate Professor of Parasitology and Director, McGill School of Environment

Seguin, Philippe; B.Sc.(Agr.), M.Sc.(McG.), Ph.D.(Minn.); Associate Professor of Plant Science and Chair of Department

Simpson, Benjamin K.; B.Sc.(Univ. Sc. & Tech., Kumasi), Ph.D.(Nfld.); Associate Professor of Food Science and Agricultural Chemistry

Singh, Jaswinder; B.Sc., M.Sc.(Punjab Agricultural University), Ph.D.(Syd.); Assistant Professor of Plant Science

Smith, Donald L.; B.Sc., M.Sc.(Acad.), Ph.D.(Guelph); Professor of Plant Science (James McGill Professor)

Solomon, Christopher T.; B.Sc.(C'nell), Ph.D.(Wisc.); Assistant Professor of Fish Biology

Strachan, Ian; B.Sc.(Tor.), M.Sc., Ph.D.(Qu.); Associate Professor of Agrometeorology

Stromvik, Martina V.; B.A., M.S.(Stockholm), Ph.D.(Ill.-Chic.); Associate Professor of Plant Science

Thériault, Pascal; B.Sc.(Agr.), M.Sc.(KSU); Faculty Lecturer, Farm Management and Technology Program

Thibault, Louise; B.Sc., M.Sc., Ph.D.(Laval); Associate Professor of Dietetics and Human Nutrition

Thomassin, Paul; B.Sc.(Agr.)(McG.), M.S., Ph.D.(Hawaii Pac.); Associate Professor of Agricultural Economics

Titman, Rodger D.; B.Sc.(McG.), M.Sc.(Bishop's), Ph.D.(New Br.); Fellow A.O.U., Associate Professor (Post-retirement) of Wildlife Biology

van de Voort, Frederik R.; B.Sc., M.Sc., Ph.D.(Br. Col.); Professor of Food Science and Agricultural Chemistry

Wade, Kevin; B.Agr.Sc., M.Agr.Sc.(Dublin), Ph.D.(C'nell); Associate Professor of Animal Science and Chair, Department of Animal Science

Waterway, Marcia J.; B.A.(Calvin), M.S.(Wisc.), Ph.D.(C'nell); Associate Professor of Plant Science and Curator, McGill University Herbarium

Watson, Alan K.; B.Sc.(Agr.), M.Sc.(Br. Col.), Ph.D.(Sask.); Professor of Agronomy and Director, Phytorium/Biopesticide Quarantine Facility

Wees, David D.; B.Sc.(Agr.), M.Sc.(McG.); Faculty Lecturer, Department of Plant Science

Weiler, Hope; B.A.Sc.(Guelph), Ph.D.(McM.); Associate Professor of Human Nutrition (Canada Research Chair)

Whalen, Joann; B.Sc.(Agr.)(Dal.), M.Sc.(McG.), Ph.D.(Ohio St.); Associate Professor of Soil Science (William Dawson Scholar)

Wheeler, Terry; B.Sc.(Nfld.), M.Sc., Ph.D.(Guelph); Associate Professor of Entomology and Director, Lyman Entomological Museum and Research Laboratory
3 Faculty of Arts

3.1 About the Faculty of Arts

The McGill campus is an oasis in the heart of the business, cultural, and entertainment centres of downtown Montreal. At the centre of the downtown campus is the Arts Building, the oldest building on campus and the University’s flagship. It houses classrooms, administrative offices, and Moyse Hall, an elegant and superbly equipped theatre. For years, the front steps of the Arts Building have been a favourite spot to meet and to take a respite from the rigours of coursework. In addition to the Arts Building, the Faculty of Arts is housed in 24 other buildings across campus, including historic houses and former apartment buildings.

Occupying a place literally and figuratively at the heart of the University, the Faculty of Arts has enjoyed steady growth since it was established in 1843 and remains by far the largest faculty at McGill with over 280 tenured or tenure-track scholars, over 6,000 undergraduates, over 1,000 graduate students, and several hundred courses. Despite the numbers, the majority of classes in Arts are smaller than those offered by any other large research university in Canada. The Faculty maintains bilateral exchange programs with many universities around the world and encourages students to spend a term or two studying abroad, either independently or through an exchange program. Internships are rapidly becoming an important part of an undergraduate degree. The Faculty of Arts Internship Office assists students who wish to pursue short-term internship opportunities at the undergraduate level. Each year, over 200 of our students intern with organizations around the globe.

McGill is known throughout the world as one of Canada’s premier institutions of learning and as one of the leading research universities in the world. Professors at McGill are leaders in their fields of expertise and leaders in education. Many of them have been the recipients of awards for innovations in teaching. The Faculty of Arts prides itself on being immediately responsive to developments and changes both within and outside academia and on developing its curricula to reflect these new realities.

3.2 History of the Faculty of Arts

McGill College, and with it the Faculty of Arts, officially opened on 6 September 1843. The early curriculum, heavily weighted in classical studies, also included lectures in mathematics, logic, French, history, geography, and law. There were very few students, only 15 by 1848.

Sir John William Dawson, who became Principal in 1855 – an office he would hold until 1893 – would institute numerous reforms and would lay the cornerstone for the reputation of excellence the Faculty enjoys today. In his inaugural address to the Board of Governors in November 1855, Dawson made it clear it was his intention to provide a curriculum which would range from the classics to modern languages and the professions, and from physics to engineering. Dawson worked quickly. By the late 1850s, instruction was offered in natural history, chemistry, agriculture, mathematics, natural philosophy, classics, history, English literature, logic, and mental and moral philosophy. And by 1860, enrolment in the Faculty had climbed to around 50.

1884 marked a milestone in the history of McGill and the Faculty of Arts for in that year Lord Strathcona, Donald Smith, made a donation that allowed for women to be admitted to McGill. The first class of “Donaldas” as they were called in honour of their benefactor, graduated in 1888. By 1889, women constituted one third of the total enrolment at the College.

In the 1890s, while the general Arts course was still firmly based in the classics requiring graduating students to be prepared in Latin and Greek, mathematics, English and a paper on “the leading events in English history” were also required. Honours programs were available in the following disciplines: classical languages; mathematics and physics; mental and moral philosophy; English language, literature, and history; geology and the natural sciences; and modern languages and history.

Over the next two decades, under the leadership of Principal Sir William Peterson, the Faculty continued to expand. In the humanities, the Departments of Classics and Philosophy expanded, as did the Department of Modern Languages to which offerings in Spanish and Italian were added to those already existing in French and German. The first lectures in Economics and Political Science were offered in 1900 and the first class of Political Economy was established.

1901. In the sciences, what had been natural philosophy divided into the disciplines of Physics, Chemistry, Botany and Zoology. By 1914, enrolment in Arts was at 776.

As the cornerstone faculty of the University, when new social science disciplines emerged over the years, and when the School of Social Work was founded in 1923, they and it were subsumed into Arts. So, too, did disciplines in the sciences. By 1931 the sciences had come to form a substantial part of the Faculty of Arts. While they had their own needs distinct from those of the humanities and social science departments, they did not want to break away from Arts entirely. The solution reached was to rename the faculty the Faculty of Arts and Science. With only minor modifications, this structure endured until 1971 when the science departments left Arts to form the Faculty of Science.
In the post war years, the Faculty also saw other changes, including in 1967, the removal of the classical language requirement. In the humanities, the Departments of Russian and Slavic Studies, East Asian Languages and Literature, and Linguistics, the Jewish Studies and African Studies programs, and the Institute of Islamic Studies were established. The social sciences saw changes as well: as disciplines further self-defined, they separated into distinct departments. The Department of Economics and Political Science split into two as did the Department of Sociology and Anthropology. And the Faculty grew in size. Between 1950 and 1970, the number of students in the Faculty of Arts and Science increased from 2500 to 6000.

In the last forty years, the Faculty has continued to grow and has continued to respond to developments and changes in the world of academia and the world at large. Today, the Faculty is made up of over 20 departments, units and programs, numbers over 280 professors and over 6000 undergraduate students, and offers several hundred courses.


3.3 Programs and Teaching in Arts

Established in 1843, the Faculty of Arts is one of the oldest in Canada and remains the largest at McGill. With over 6,000 full-time students and over 280 full-time professors, the Faculty offers several hundred courses in many disciplines.

The Faculty of Arts permits students great program flexibility. Students may concentrate on one Arts discipline while obtaining minor concentrations in other disciplines in Arts or in other faculties, such as, for example, Science. McGill’s historic Arts building is the centrepiece of the University’s downtown campus. It houses classrooms, offices and Moyse Hall – an elegant and well-equipped performance theatre. The Faculty maintains bilateral exchange programs with many universities around the world and encourages students to spend a term or two studying abroad, either through an exchange program or independently.

McGill Arts graduates are valued for their ability to think critically and communicate effectively, often in more than one language. Their skills in research and analysis are applicable in a wide spectrum of professional fields, such as law, education, business, government, and public service.

The Faculty of Arts offers programs leading to the degrees of B.A. and B.S.W. Admission is selective; fulfilment of the minimum requirements does not guarantee acceptance. Admission criteria are described in the Undergraduate Admissions Guide, found at www.mcgill.ca/applying.

The Faculty of Arts also offers a Diploma in Environment under the McGill School of Environment, a 30-credit program available to holders of a B.Sc. or B.A. or equivalent. All credits for the Diploma must be completed at McGill. For more information, see McGill School of Environment > Diploma in Environment.

Finally, the Faculties of Arts and of Science jointly offer programs leading to the degree of the Bachelor of Arts and Science (B.A. & Sc.), which is described under the Bachelor of Arts and Science section of this publication.

3.4 Revisions – Faculty of Arts

Course Requirements

section 3.7.5.2: Course Overlap

Freshman Program

section 3.7.4.1.2: Bachelor of Arts (B.A.) – Freshman Program – French (30 credits)

Overview of Programs Offered

section 3.10.6: Joint Honours Programs

Academic Programs

section 3.11.1: First-Year Seminars

Art History and Communication Studies

section 3.11.6.6: Bachelor of Arts (B.A.) – Major Concentration Art History (36 credits)
section 3.11.6.7: Bachelor of Arts (B.A.) - Honours Art History (60 credits)
section 3.11.6.8: Bachelor of Arts (B.A.) - Joint Honours Component Art History (36 credits)

Canadian Studies

section 3.11.8.4: Bachelor of Arts (B.A.) – Minor Concentration Canadian Studies (18 credits)
section 3.11.8.5: Bachelor of Arts (B.A.) – Major Concentration Canadian Studies (36 credits)
### Canadian Studies

- **Bachelor of Arts (B.A.) – Honours Canadian Studies (57 credits)**
- **Joint Honours Component Canadian Studies (36 credits)**

### English

- **Minor Concentration English – Cultural Studies (18 credits)**
- **Major Concentration English – Cultural Studies (36 credits)**
- **Honours English – Cultural Studies (60 credits)**

### Linguistics

- **Minor Concentration Linguistics (18 credits)**
- **Major Concentration Linguistics (36 credits)**
- **Honours Linguistics (60 credits)**
- **Joint Honours Component Linguistics (36 credits)**

### Political Science

- **Minor Concentration Politics, Law and Society (18 credits)**

### Psychology

- **Minor Concentration Behavioural Science (18 credits)**
- **Major Concentration Psychology (36 credits)**
- **Honours Psychology (60 credits)**

### Religious Studies

- **Major Concentration World Religions (36 credits)**
- **Joint Honours Component Religious Studies – Asian Religions (36 credits)**

### Russian and Slavic Studies

- **Minor Concentration Russian Culture (18 credits)**

### Science for Arts Students

- **Minor Concentration Science for Arts Students (18 credits)**

### Social Studies of Medicine

- **Minor Concentration Social Studies of Medicine (18 credits)**

### About the Faculty of Arts (Undergraduate)

The McGill campus is an oasis in the heart of the business, cultural, and entertainment centres of downtown Montreal. At the centre of the downtown campus is the Arts Building, the oldest building on campus and the University's flagship. It houses classrooms, administrative offices, and Moyse Hall, an elegant and superbly equipped theatre. For years, the front steps of the Arts Building have been a favourite spot to meet and to take a respite from the rigours of coursework. In addition to the Arts Building, the Faculty of Arts is housed in 24 other buildings across campus, including historic houses and former apartment buildings.

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McGill is known throughout the world as one of Canada’s premier institutions of learning and as one of the leading research universities in the world. Professors at McGill are leaders in their fields of expertise and leaders in education. Many of them have been the recipients of awards for innovations in teaching. The Faculty of Arts prides itself on being immediately responsive to developments and changes both within and outside academia and on developing its curricula to reflect these new realities.

3.5.1 Location

Arts Office of Advising and Student Information Services
Dawson Hall
853 Sherbrooke Street West
Montreal, Quebec H3A 2T6
Canada

Telephone: 514-398-1029
Fax: 514-398-2157
Faculty of Arts website: www.mcgill.ca/arts
Faculty of Arts Office of Advising and Student Information Services (OASIS) website: www.mcgill.ca/oasis

Arts OASIS, and the Office of the Associate Dean (Student Affairs) of the Faculty of Arts, are located in Dawson Hall, Rooms 110 and 115. Arts OASIS serves undergraduate students in the Faculty of Arts.

3.5.2 Administrative Officers

Christopher Manfredi; B.A., M.A.(Calg.), M.A., Ph.D.(Claremont)  Dean
Juliet Johnson; B.A.(Stan.), M.A.(Princ.), Ph.D.(Princ.)  Associate Dean (Research and Graduate Studies)
Suzanne Morton; B.A.,(Trent), M.A., Ph.D.(Dal.)  Associate Dean (Academic and Oversight)
André Costopoulos; B.A.(McG.), M.A.(Montr.), Ph.D.(Oulu)  Associate Dean (Student Affairs), Arts OASIS
Susan Sharpe  Course and Program Officer

3.5.3 Faculty of Arts Office of Advising and Student Information Services (OASIS)

Arts OASIS provides ongoing advice and guidance on programs, degree requirements, registration issues, exams, rereads, academic standing, inter-faculty transfer, study away, and graduation for undergraduate Arts students.

Faculty advisers in Arts OASIS offer help managing academic situations during periods of personal, financial, or medical problems, by working with you to identify various possibilities and strategies for making informed decisions. Arts OASIS advisers can be contacted via email at adviser.arts@mcgill.ca.

Arts OASIS advisers also approve course selection for U0 Arts Freshman students.

Special requests can be made, in writing, to the Associate Dean (Student Affairs). For more information, please refer to our website at www.mcgill.ca/oasis.

3.6 Faculty Admission Requirements

For information about admission requirements to the B.A., B.A. & Sc. or B.S.W., please refer to the Undergraduate Admissions Guide, found at www.mcgill.ca/applying.

For information about inter-faculty transfers, please refer to University Regulations and Information > Inter-Faculty Transfer, as well as to the relevant information posted on the Arts OASIS website at www.mcgill.ca/oasis.

(For information about readmission, please refer to the Arts OASIS website at www.mcgill.ca/oasis.)

3.7 Faculty of Arts Degree Requirements

Each student in the Faculty of Arts must be aware of the Faculty regulations as stated in this publication and on the McGill, Arts, and Arts Office of Advising and Student Information Services (OASIS) websites.

While departmental and Faculty advisers and staff are always available to give advice and guidance, the ultimate responsibility for completeness and correctness of your course selection and registration, for compliance with, and completion of your program and degree requirements, and for the observance of regulations and deadlines, rests with you. It is your responsibility to seek guidance from Arts OASIS if in any doubt; misunderstanding or misapprehension will not be accepted as cause for dispensation from any regulation, deadline, program, or degree requirement.
To be eligible for a B.A. degree, you must fulfill all Faculty and program requirements as indicated below:

section 3.7.1: Minimum Credit Requirement

You must complete the minimum credit requirement for your degree as specified in your letter of admission.

Students are normally admitted to a four-year degree requiring the completion of 120 credits, but Advanced Standing of up to 30 credits may be granted if you obtain satisfactory results in the Diploma of Collegial Studies, International Baccalaureate, French Baccalaureate, Advanced Levels, and Advanced Placement exams.

If you are readmitted after interrupting your studies for a period of five consecutive years or more, you may be required to complete a minimum of 60 credits and satisfy the requirements of your program. In this case, a new GPA will be calculated. The Associate Dean (Student Affairs), in consultation with the appropriate department, may approve a lower minimum for students who had completed 60 credits or more before interrupting their studies.

If you are readmitted after a period of absence, you are normally subject to the program and degree requirements in effect at the time of readmission. For more information about readmission, see the Arts OASIS website: www.mcgill.ca/oasis.

section 3.7.2: Residency Requirement

To obtain a degree, you must complete a minimum of 60 credits at McGill University toward the fulfillment of your degree requirements. At least two-thirds of all program requirements (Multi-track, Honours, Faculty) must normally be completed at McGill. In addition, some departments may require that you complete specific components of your program at McGill.

Exceptionally, and subject to departmental approval, if you are in a minor concentration and you pursue an approved exchange or study away program, you may complete up to half of the minor concentration requirements elsewhere.

The residency requirement for the Diploma in Environment is 30 credits completed at McGill.

section 3.7.3: Time and Credit Limit for Completion of Degree

If you need 96 or fewer credits to complete your degree requirements, you are expected to complete your degree in no more than eight terms after your initial registration for the degree. If you are a student in the Freshman program, you become subject to these regulations one year after your initial registration. If you need or want to exceed this time limit, you must apply to Arts OASIS for permission to continue your studies.

If you want to exceed the minimum credit requirement for your degree, you must also seek permission from Arts OASIS to continue your studies.

Permission for exceeding the time and/or credit limit will normally be granted only for valid academic reasons, such as a change of program (subject to departmental approval) and part-time status. Elective credits over the credit limit will normally be flagged for no credit and the grades will not count in the CGPA.

section 3.7.4: About Program Requirements

If you need 97 or more credits to complete your degree requirements (4-year degree), you are automatically registered in the Freshman program and are expected to select one of the Freshman program concentrations from the Registration Menu on Minerva. For more information, refer to www.mcgill.ca/oasis.

If you need 96 or fewer credits to complete your B.A. degree requirements (3-year degree), you must select a program at the time of registration. You may select the Multi-track system, Honours program, Joint Honours program, or Faculty program. For more information, please refer to the appropriate department: www.mcgill.ca/arts/departments. If you are unsure of which program to select, contact a faculty adviser in Arts OASIS.

3.7.4.1 Freshman Program (Overview)

If you need 97-120 credits to complete your degree requirements, you must first complete the Freshman program, which is designed to provide a basic foundation prior to selecting a departmental program the following year. You may select one of the following Freshman program options on Minerva:

- General Option
- French Option

For further details, refer to the Arts Freshman information at www.mcgill.ca/oasis.

3.7.4.1.1 Bachelor of Arts (B.A.) - Freshman Program - General (30 credits)

The Bachelor of Arts Freshman Program is designed to ensure that students gain a broad foundation for the three-year degree program. It is comprised of 24-30 credits. In the General option, students develop their own program of study using courses from the social sciences, humanities, languages, and/or math and sciences.
This 30-credit option has a core requirement of 18 credits completed by selecting 6 credits in each of three of the four Arts subject categories: social sciences, humanities, languages, and/or mathematics and science. Students select 12 additional credits from approved courses for Freshman students based on their interests. A maximum of 18 credits may be taken in any one area and a maximum of 12 credits may be taken in the courses offered by any one department. For more information, see the Arts OASIS website for newly admitted Freshman students at: http://www.mcgill.ca/oasis.

**Core Requirement (18 credits)**

18 credits with 6 credits in each of three of the four Arts categories: social sciences, humanities, languages, and mathematics and science.

The course lists below are organized by Arts category and include only courses approved by the offering department for Freshman (U0) students. Students may use these lists to plan their course selection.

**Approved Courses - Social Sciences**

For a list of the approved Arts Freshman (U0) courses, see the Arts OASIS website at: http://www.mcgill.ca/oasis.

Note: If you intend to follow a psychology program, you should not register in SOCI 216 (Social Psychology). PSYC 215 (Social Psychology) is more appropriate. Credit will not be given for both courses.

Note: A few courses may be listed in both Social Sciences and in another category. For example, CANS 200, CANS 202 and ISLA 210 are considered to be both Social Sciences and Humanities courses.

**Approved Courses - Humanites**

For a list of the approved Arts Freshman (U0) courses, see the Arts OASIS website at: http://www.mcgill.ca/oasis.

Note: Some of the courses listed below are not suitable for first term as they require university-level prerequisites. Please check the course entries for further information about appropriate background before registering.

Note: A few courses may be listed in both Humanities and in another category. For example, CANS 200 and CANS 202 are considered to be both Humanities and Social Science courses; FREN 198 and FREN 199 are considered to be both Humanities and Languages courses.

**Approved Courses - Languages**

For a list of the approved Arts Freshman (U0) courses, see the Arts OASIS website at: http://www.mcgill.ca/oasis.

Note: When registering for 'D1' courses, you MUST also register for the second part 'D2' of this full-year course.

Note: No more than one language should be taken at the introductory level during the Freshman year. Students with prior knowledge of the language may take higher-level courses with permission from the department.

Note: A few courses may be listed in both Languages and in another category. For example, FREN 198 and FREN 199 are considered to be both Languages and Humanities courses.

**Approved Courses - Mathematics and Sciences**

For a list of the approved Arts Freshman (U0) courses, see the Arts OASIS website at: http://www.mcgill.ca/oasis.

Note: Some of the courses listed below are not suitable for first term as they require university-level prerequisites. Please check the course entries for further information about appropriate background before registering.

Note: GEOG 205 is listed as a Mathematics and Sciences course as well as a Social Sciences course.

### 3.7.4.1.2 Bachelor of Arts (B.A.) – Freshman Program – French (30 credits)

**Revision, August 2011. Start of revision.**

The Bachelor of Arts Freshman Program is designed to ensure that students gain a broad foundation for the three-year degree program. It is comprised of 24-30 credits in one of two program options. In the "En français" or French option, students choose up to 18 credits from a variety of courses conducted in French. These credits may be comprised wholly of language courses, wholly of substantive content courses conducted in French, or a combination of the two.

**Core Requirement (18 credits)**

Based on their proficiency in French, students select 18 credits from the courses below in French Language and Literature and French as a Second Language.

**French Language and Literature Courses (FREN)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 199</td>
<td>3</td>
<td>FYS: Littérature française</td>
</tr>
<tr>
<td>FREN 201</td>
<td>3</td>
<td>Composition 1</td>
</tr>
<tr>
<td>FREN 203</td>
<td>3</td>
<td>Composition 2</td>
</tr>
<tr>
<td>FREN 231</td>
<td>3</td>
<td>Linguistique française</td>
</tr>
<tr>
<td>FREN 239</td>
<td>3</td>
<td>Stylistique comparée</td>
</tr>
</tbody>
</table>
### French as a Second Language (FRSL)

Depending on their level of proficiency, students may include a maximum of 12 credits of intensive French language courses. An intensive language course is a 6 credit term course. Students at the introductory level must take at least 6 credits in French in their Freshman year but may be permitted to complete the remaining core requirement credits in year U1.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 245</td>
<td>3</td>
<td>Grammaire avancée</td>
</tr>
<tr>
<td>FRSL 101D1</td>
<td>3</td>
<td>Beginners' French</td>
</tr>
<tr>
<td>FRSL 101D2</td>
<td>3</td>
<td>Beginners' French</td>
</tr>
<tr>
<td>FRSL 103</td>
<td>3</td>
<td>Near Beginners' French</td>
</tr>
<tr>
<td>FRSL 104</td>
<td>3</td>
<td>Corrective French Pronunciation</td>
</tr>
<tr>
<td>FRSL 105</td>
<td>6</td>
<td>Intensive Beginners' French</td>
</tr>
<tr>
<td>FRSL 206</td>
<td>3</td>
<td>Elementary French</td>
</tr>
<tr>
<td>FRSL 207D1</td>
<td>3</td>
<td>Elementary French 01</td>
</tr>
<tr>
<td>FRSL 207D2</td>
<td>3</td>
<td>Elementary French 01</td>
</tr>
<tr>
<td>FRSL 208</td>
<td>6</td>
<td>Intensive Elementary French</td>
</tr>
<tr>
<td>FRSL 211D1</td>
<td>3</td>
<td>Oral and Written French 1</td>
</tr>
<tr>
<td>FRSL 211D2</td>
<td>3</td>
<td>Oral and Written French 1</td>
</tr>
<tr>
<td>FRSL 212</td>
<td>3</td>
<td>Oral and Written French 1</td>
</tr>
<tr>
<td>FRSL 215</td>
<td>6</td>
<td>Oral and Written French 1 - Intensive</td>
</tr>
<tr>
<td>FRSL 216</td>
<td>3</td>
<td>Découvrons Montréal en français</td>
</tr>
<tr>
<td>FRSL 302</td>
<td>3</td>
<td>Listening Comprehension and Oral Expression 1</td>
</tr>
<tr>
<td>FRSL 303</td>
<td>3</td>
<td>Listening Comprehension and Oral Expression 2</td>
</tr>
<tr>
<td>FRSL 321D1</td>
<td>3</td>
<td>Oral and Written French 2</td>
</tr>
<tr>
<td>FRSL 321D2</td>
<td>3</td>
<td>Oral and Written French 2</td>
</tr>
<tr>
<td>FRSL 322</td>
<td>3</td>
<td>Oral and Written French 2</td>
</tr>
<tr>
<td>FRSL 325</td>
<td>6</td>
<td>Oral and Written French 2 - Intensive</td>
</tr>
<tr>
<td>FRSL 326</td>
<td>3</td>
<td>Découvrons le Québec en français</td>
</tr>
<tr>
<td>FRSL 332</td>
<td>3</td>
<td>Intermediate French: Grammar 01</td>
</tr>
<tr>
<td>FRSL 333</td>
<td>3</td>
<td>Intermediate French: Grammar 02</td>
</tr>
<tr>
<td>FRSL 407</td>
<td>3</td>
<td>Compréhension et expression orales</td>
</tr>
<tr>
<td>FRSL 408</td>
<td>3</td>
<td>Français oral: Textes et expressions</td>
</tr>
<tr>
<td>FRSL 431D1</td>
<td>3</td>
<td>Français fonctionnel avancé</td>
</tr>
<tr>
<td>FRSL 431D2</td>
<td>3</td>
<td>Français fonctionnel avancé</td>
</tr>
<tr>
<td>FRSL 432</td>
<td>3</td>
<td>Français fonctionnel</td>
</tr>
<tr>
<td>FRSL 445</td>
<td>3</td>
<td>Français fonctionnel, écrit 1</td>
</tr>
<tr>
<td>FRSL 446</td>
<td>3</td>
<td>Français fonctionnel, écrit 2</td>
</tr>
<tr>
<td>FRSL 449</td>
<td>3</td>
<td>Le Français des médias</td>
</tr>
<tr>
<td>FRSL 455</td>
<td>3</td>
<td>Grammaire et création</td>
</tr>
</tbody>
</table>

### Substantive Content Courses Taught in French

Some subject area courses or “substantive content courses” are taught in French. Some courses may be offered in French and English in alternate years. POLI 226 listed below is such a course. When taught in French, such courses may be counted toward this program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLI 226</td>
<td>3</td>
<td>La vie politique québécoise</td>
</tr>
</tbody>
</table>
Remaining Credits (12 credits)

Students select the remaining credits (normally 12) for their Freshman year from the list of "Approved Courses" for Arts Freshman students. This list is found with requirements for the Freshman Program - General option.

Revision, August 2011. End of revision.

3.7.4.2 Departmental Programs

If you need 96 or fewer credits to complete your degree requirements you are required to have an approved program (Multi-track, Honours, Faculty), and to select your courses in each term with a view to timely completion of your degree and program requirements. No course may fulfill the requirements for more than one program or concentration requirement. You must complete one of the following program streams:

3.7.4.2.1 Bachelor of Arts Degree: Multi-Track System

To recognize the diversity of student backgrounds and interests and the multiple routes to understanding provided by a modern university, the Faculty of Arts offers a 90-credit multi-track system that includes a major concentration complemented by at least a minor concentration and that may be completed in one of the following ways:

<table>
<thead>
<tr>
<th>Options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Major Concentration (36) + Minor Concentration (18) + 36 credits of electives</td>
</tr>
<tr>
<td>B</td>
<td>Major Concentration (36) + Major Concentration (36) + 18 credits of electives</td>
</tr>
<tr>
<td>C</td>
<td>Major Concentration (36) + Minor Concentration (18) + Minor Concentration (18) + 18 credits of electives</td>
</tr>
</tbody>
</table>

Regulations

• Within option A and option B, all Concentrations must be in different academic units. (If you are completing a second degree in the Faculty of Arts, this regulation is waived.)
• Within option C, one of the Minor Concentrations may be in the same unit as the Major Concentration. If you pursue a same-unit Minor Concentration, you will substitute additional complementary (non-required) courses to a total of 18 credits for any courses completed as a part of your Major Concentration within that unit.
• You will include within the 36 or 18 credits of your Major or Minor Concentration any university-level (200 or above) prerequisites to required courses within their Concentrations.

Definitions

• Units: academic departments or administrative equivalents.
• Programs: lists of required and complementary courses (including prerequisites for required courses) prepared and maintained by units.
• Major Concentration: a program of 36 credits taken from a unit’s course offerings.
• Minor Concentration: a program of 18 credits taken from a unit’s course offerings. Expandable Minor Concentrations are those which can, on the completion of 18 additional approved credits, be expanded into a Major Concentration within the appropriate unit.

3.7.4.2.2 Bachelor of Arts Degree: Honours Program

Honours programs demand a high degree of specialization, and require you to satisfy specific departmental and Faculty Honours requirements while maintaining a good academic standing. They are designed to prepare you for graduate study.

Regulations

• To be registered in an Honours program after the first year, you must have attained a GPA and CGPA of at least 3.00 in the previous year, unless you have special permission from the department and the Associate Dean (Student Affairs).
• To complete an Honours degree, you must achieve a minimum CGPA of 3.00. The program GPA (the GPA of all required and complementary courses taken at McGill which constitute the Honours program) must be a minimum of 3.00, although academic units may set higher requirements for their program GPA.
• In addition to the completion of the Honours requirements, you must complete at least a minor concentration in an academic unit other than the one in which the Honours requirements are satisfied. (If you complete a second degree in the Faculty of Arts, you do not need to complete a minor.)

3.7.4.2.3 Bachelor of Arts Degree: Joint Honours Program

If you want to study at the Honours level in two disciplines, you can combine Joint Honours program components from any two Arts disciplines; see section 3.10.6: Joint Honours Programs for a list of available programs. Each Joint Honours component consists of a maximum of 36 required and complementary credits (not including program prerequisites). In cases where a minimum of 24 credits are in courses normally restricted to Honours students, the total of required and complementary credits may be as few as 30.
To complete a Joint Honours degree, you must achieve a minimum CGPA of 3.00. The program GPA (the GPA of all required and complementary courses taken at McGill which constitute the Joint Honours program) must be a minimum of 3.00, although academic units may set higher requirements for your component of the program GPA.

3.7.4.2.4 Bachelor of Arts Degree: Faculty Program

A Faculty program is an approved selection of courses constituting a concentration in an intellectually coherent and inter-faculty field of studies. These courses must include approved selections from one of the following:

- The Faculties of Arts and of Science, and at least one other faculty.
- The Faculty of Arts, and at least one faculty other than the Faculty of Science.
- The Faculty of Arts currently recognizes the following Faculty programs in:
  - Industrial Relations
  - McGill School of Environment

3.7.4.2.5 Bachelor of Arts Degree: Science Minor Programs

If you want to register for a minor program offered by the Faculty of Science, you must fulfill the Arts program requirements as indicated above, as well as complete any prerequisites for the additional program. If you're interested, you must write to the Associate Dean (Student Affairs), including with your request written approval from the Science Minor Adviser.

3.7.5 Course Requirements

All required and complementary courses used to fulfill program requirements must be completed with a grade of C or better. If you fail to obtain a satisfactory grade in a required course, you must either pass the supplemental examination in the course if this option is available, or repeat the course. Course substitution will be allowed only in special cases; you should consult your departmental academic adviser.

Normally, you are permitted to repeat a failed course only once. (Failure is considered to be a grade of less than C or the administrative failures of J or KF.) If a required course is failed a second time, you must appeal to the Associate Dean (Student Affairs) for permission to take the course a third time. If permission is denied by the Associate Dean and/or by the Committee on Student Standing, on appeal, you must withdraw from the program. If the failed course is a complementary course required by your program, you may choose to replace it with another appropriate complementary course. If you choose to substitute another complementary course for a complementary course in which a D was received, credit for the first course will still be given, but as an elective. If you repeat a required course in which a D was received, credit will be given only once.

Full details of the course requirements for all programs offered are given in each unit’s section together with the locations of departmental advisory offices, program directors, and telephone numbers should further information be required.

3.7.5.1 Course Prerequisites

The Faculty of Arts does not prevent you from registering for courses if you do not have the required prerequisites. However, if you lack the prerequisite course, you must consult with the instructor of the course you want to take, to ensure that you have the necessary background. Please note that other faculties may not allow registration without the required prerequisite courses.

3.7.5.2 Course Overlap

You will not receive additional credit toward your degree for any course that overlaps in content with a course for which you have already received credit at McGill, CEGEP, at another university, or Advanced Placement exams, Advanced Level results, International Baccalaureate Diploma, or French Baccalaureate. It is your responsibility to consult with a faculty adviser in Arts OASIS or the department offering the course as to whether or not credit can be obtained and to be aware of exclusion clauses specified in the course description in this publication. Please refer to the following website for specific information about advanced standing credits and McGill course exemptions: www.mcgill.ca/student-records/transfercredits.

Revision, August 2011. Start of Revision.

Credit for statistics courses will be given with the following stipulations:

- Credit will be given for ONLY ONE of the following introductory statistics courses: AEMA 310, BIOL 373, ECON 227D1/D2, ECON 257D1/D2, GEG 202, MATH 203, MGCR 271, MGCR 273, PSYC 204, SOCI 350.
- Credit will be given for ONLY ONE of the following intermediate statistics courses: AEMA 411, ECON 227D1/D2, ECON 257D1/D2, GEG 351, MATH 204, MGCR 272, PSYC 305, SOCI 461. Only when ECON 227D1/D2 or ECON 257D1/D2 is combined with PSYC 305 will credit be given for both courses.
- Students who have already received credit for MATH 324 or MATH 357 will NOT receive credit for any of the following: AEMA 310, AEMA 411, BIOL 373, ECON 227D1/D2, ECON 257D1/D2, GEG 202, GEG 351, MATH 203, MATH 204, MGCR 271, MGCR 272, MGCR 273, PSYC 204, PSYC 305, SOCI 350.
- For 500-level statistics courses not listed above, students must consult a program adviser to ensure that no significant overlap exists. Where such overlap exists with a course for which the student has already received credit, credit for the 500-level course will not be allowed.
- PSYC 204 may not be taken if a grade of 75% was received in an equivalent course completed at CEGEP.

Revision, August 2011. End of Revision.

Credit for computer courses will be subject to the following restrictions:
• Credit for courses offered by the School of Computer Science is governed by rules specified in each individual course description.

3.7.5.3 Courses Outside the Faculties of Arts and of Science

The following regulations apply to you if you wish to take courses outside the Faculties of Arts and of Science:

• Regardless of the minimum credit requirement towards your B.A. degree, you are allowed a maximum of 12 credits in elective and/or complementary courses taken in faculties other than the Faculties of Arts and of Science.

• In certain designated programs that include a number of required and complementary courses in other faculties, you are permitted a maximum of 30 credits outside the Faculties of Arts and of Science. These programs are as follows:

  Faculty programs:
  • Environment
  • Industrial Relations

  Minors:
  • Education for Arts students
  • Finance for non-Management students
  • Management for non-Management students
  • Marketing for non-Management students
  • Musical Applications of Technology
  • Musical Science and Technology
  • Operations Management for non-Management students

  Minor concentrations:
  • Educational Psychology
  • Environment
  • Geography Urban Systems
  • Music

  Major concentrations:
  • Geography Urban Systems
  • Music

  Honours:
  • Environment
  • Urban Systems

  Joint Honours:
  • Economics and Accounting
  • Economics and Finance

• If you combine any two or more of the programs listed above, you may not exceed 40 credits outside the Faculties of Arts and of Science.

• Any courses taught at McGill University may be used towards the maximum allowed with the following exceptions:
  • School of Continuing Studies: School of Continuing Studies courses with a teaching unit that starts with C are not for credit (except for CHEM and courses offered by the McGill Writing Centre).
  • Distance Education: Refer to section 3.7.5.6: Policy on Distance Education Courses in this publication.

• For the purpose of this policy, courses taught in other faculties and specifically listed in the Arts or Science section of this publication are considered as courses taught in the Faculties of Arts and of Science.

• For the purpose of this policy, all courses taken to fulfil the requirements for an approved field semester will be considered as courses in Arts or Science.

• The maximum number of credits allowed will be strictly enforced.

3.7.5.4 Inter-University Transfer Credit Policy for Courses Taken Outside the Faculties of Arts and of Science

If you transfer from a faculty outside the Faculties of Arts and of Science at another institution, you may transfer up to a maximum of 30 credits under the following conditions:
• Only courses passed with a grade of C or better will be transferred. Grades of C-, P or S are not acceptable. The letter grades applied by your former home institution take precedence over the numerical grades if provided.
• Decisions on whether a course is outside the Faculties of Arts and of Science will be based on the original faculty in which your course was taken.
• Refer to section 3.7.5.6: Policy on Distance Education Courses.
• Transfer credits for Continuing Education courses will be granted only if the courses can be used towards a degree program in a faculty other than Continuing Education at your former home university.
• You will be allowed to take courses outside the Faculties of Arts and of Science at McGill only if you have transferred fewer than 12 credits, and then only up to a maximum of 12 credits.
• If you register for a Faculty of Arts program that requires additional credits outside the Faculties of Arts and of Science, you will be allowed to take only the number of credits outside the Faculties of Arts and of Science required to complete your program, as long as the total number of credits outside the Faculties of Arts and Science, including transfer credits, do not exceed 40 credits.

3.7.5.5 Inter-Faculty Transfer Credit Policy for Courses Taken Outside the Faculties of Arts and of Science
You will normally have counted for credit (for grades of D or better) and/or GPA (regardless of the grade) all courses in Arts and Science, and up to a maximum of 30 credits of courses outside of Arts and of Science.
• You will be allowed to take courses outside the Faculties of Arts and of Science at McGill only if you have transferred fewer than 12 credits, and then only up to a maximum of 12 credits.
• If you register for a Faculty of Arts program that requires additional credits outside the Faculties of Arts and of Science, you will be allowed to take only the number of credits outside the Faculties of Arts and of Science required to complete your program, as long as the total number of credits outside the Faculties of Arts and Science, including transfer credits, do not exceed 40 credits.

3.7.5.6 Policy on Distance Education Courses
A maximum of 6 credits of elective courses taught through distance education may be used towards your degree at McGill. Courses taught through distance education from institutions other than McGill will be approved as transfer credits under the following conditions:
• the course is given by a government-accredited, degree-granting institution acceptable to McGill;
• the course counts for credit towards degrees granted at the institution giving the course;
• prior approval for the course is obtained from Arts OASIS.

The combined total of regular course credits and distance education course credits may not exceed the permitted maximum number of credits per term according to Faculty regulations. Courses taught through distance education may not be used to complete program requirements, except on an individual basis when serious, documented circumstances warrant it. In such cases, prior approval must be obtained from your departmental academic adviser and the Associate Dean (Student Affairs).

3.7.5.7 Internship Courses
The Faculty of Arts offers internship courses for credit. For more information, refer to section 3.11.2: Faculty of Arts Internship Program.

3.7.5.8 Courses in English as a Second Language (ESL)
Up to a maximum of 12 credits of ESL courses, including academic writing courses for non-anglophones, are open to you if your primary language is not English and you have studied for fewer than five years in an English-language secondary institution.

Note: Effective Summer 2011, the English as a Second Language courses (ESL) will be offered through the McGill Writing Centre (www.mcgill.ca/mwc). These courses will also have a new prefix, CESL. For a list of MWC courses that can be taken for credit in the Faculty of Arts, consult the Arts OASIS website (www.mcgill.ca/oasis).

Placement tests are required for all ESL courses. For more information on placement tests, see www.mcgill.ca/mwc. Soon after the tests are evaluated, you will be issued a permit from the MWC for course registration.

3.7.5.9 First-Year Seminar Courses
Registration for First-Year Seminars is limited to students in their first year of study at McGill, i.e., newly admitted students in U0 or U1. These courses are designed to provide a closer interaction with professors and better working relations with peers than is available in large introductory courses. These seminars endeavour to teach the latest scholarly developments and expose participants to advanced research methods. Registration is on a first-come, first-served basis. The maximum number of students in any seminar is 25, although some are limited to even fewer than that.

You may take only one First-Year Seminar. If you register for more than one, you will be obliged to withdraw from all but one of them. For a complete listing, see section 3.11.1: First-Year Seminars.

The First-Year Seminars offered by the Faculty of Science are also open to Arts students. For a complete listing, see Faculty of Science > Registration for First-Year Seminars in this publication.
### 3.7.5.10 Graduate-Level Courses

Enrolment of undergraduate students in 600-level courses

Policy:

An undergraduate student will be permitted to take 600-level courses subject to the following conditions:

- The student has a minimum CGPA of 3.3.
- The student is in U3 or higher.
- The professor of the course and the program adviser or the director of the undergraduate program provide written approval supporting the request.
- A maximum of 6 credits of 600-level courses are allowed toward the degree.
- The actual course number appears on the transcript.
- The course evaluation methods and grading standards are the same for all students, whether graduate or undergraduate.
- The regulations and practices of the Faculty of Arts are also applied to such a course.

A copy of the application form is available at the Arts OASIS counter.

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### 3.8 Advising

If you need 96 or fewer credits to complete your degree requirements, you must consult with a departmental academic adviser in your proposed department of study to obtain advice and approval of your course selection. To facilitate program planning, you must present your transcript(s) and letter of admission. For a detailed description of advising and registration procedures, you should refer to the website for newly admitted undergraduate students at [www.mcgill.ca/newstudents](http://www.mcgill.ca/newstudents), as well as refer to the Arts OASIS website at [www.mcgill.ca/oasis](http://www.mcgill.ca/oasis), and to departmental websites.

If you need 97-120 credits to complete your degree requirements, you will normally be registered in a Freshman program until you complete your first year. You must consult with a faculty adviser in Arts OASIS to obtain advice and approval of your course selection. For a detailed description of advising and registration procedures as a Freshman student, you should refer to the sections University Regulations and Information > Registration and University Regulations and Information > Advising and Support; to the website for newly admitted undergraduate students at [www.mcgill.ca/newstudents](http://www.mcgill.ca/newstudents); as well as refer to the Arts OASIS website at [www.mcgill.ca/oasis](http://www.mcgill.ca/oasis).

Academic advising for all returning students takes place in March for the upcoming academic year. For more information, please refer to the "Announcements" section on the Arts OASIS website, [www.mcgill.ca/oasis](http://www.mcgill.ca/oasis).

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### 3.9 Examinations

You should refer to University Regulations and Information > Final Examinations for information about final examinations and deferred examinations.

The exam schedules are posted on the McGill website, [www.mcgill.ca/students](http://www.mcgill.ca/students), normally one month after the start of classes for the Tentative Exam Schedule, and two months after the start of classes for the Final Examination Schedule.

Students are warned not to make travel arrangements to leave Montreal prior to the scheduled end of any examination period.

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### 3.10 Overview of Programs Offered

#### 3.10.1 Programs in the Faculty of Arts

The Faculty of Arts offers programs leading to the degrees of B.A. and B.S.W. Admission is selective; fulfillment of the minimum requirements does not guarantee acceptance. Admission criteria are described in the Undergraduate Admissions Guide, found at [www.mcgill.ca/applying](http://www.mcgill.ca/applying).

The Faculty of Arts also offers a Diploma in Environment under the McGill School of Environment; a 30-credit program is available to holders of a B.Sc. or B.A. or equivalent. All credits for the Diploma must be completed at McGill. For more information, see McGill School of Environment > Diploma in Environment.

The Faculties of Arts and of Science jointly offer programs leading to the degree of the Bachelor of Arts and Science (B.A. & Sc.), which is described in the Bachelor of Arts and Science section of this publication.

#### 3.10.2 The Degrees Offered

The Bachelor of Arts (B.A.) degree integrates the Humanities, Social Sciences, Languages, and a wide range of Interdisciplinary Studies into a coherent academic program. It is as broad and comprehensive in scope as is human behaviour and communication. Students interested in gaining insight into how
society worked and people expressed themselves in the past, how society works and how people express themselves today, and what we may look for in the future, pursue a B.A. degree.

Students interested in the traditional and the avant-garde are equally at home in the Faculty of Arts. The B.A. is a degree that allows students to appreciate the interdisciplinary connections with the past in order to understand the present and prepare for a promising future. A McGill B.A. leads to a wide range of opportunities in many fields, especially those that emphasize critical thinking.

The Faculty of Arts at McGill is especially proud of its major and minor concentration programs known as the multi-track system. The multi-track system encourages flexibility, independence, and knowledge in a diversity of disciplines. It provides students with an unprecedented opportunity to tailor a unique academic profile suited to their specific interests and career ambitions. Students also have the option of doing minor concentrations in other faculties.

The Bachelor of Social Work (B.S.W.), an undergraduate program of professional studies, is offered through the School of Social Work. In addition to the standard three-year B.S.W. program, the School offers a two-year program for students who already have an undergraduate degree in another discipline.

The B.S.W. program is designed to provide an academic environment within which students will develop: integrated social work knowledge pertaining to its history, theoretical foundations, research base, practice modalities and policies that influence the delivery of health and social services; professional skills in the well-established methods of practice; an understanding of social policy in Canada; an awareness of the various dimensions of diversity and how they intersect in an increasingly heterogeneous society; and a sense of identity with the profession of social work.

The B.A. & Sc. is an interdisciplinary degree intended for students who want to pursue simultaneously a program offered by the Faculty of Arts and one offered by the Faculty of Science or a program offered jointly by both faculties.

The central objective of the B.A. & Sc. is to provide students with a broad education that includes in-depth study of disciplines in both faculties. The degree gives students a unique opportunity to achieve a diverse knowledge base, to gain competence in different methods of scholarship, to hone intellectual flexibility, and to integrate material across disciplines.

By choosing their programs appropriately, students who obtain a B.A. & Sc. are well prepared to pursue employment, or postgraduate studies, in a wide variety of fields. The varied intellectual skills they have developed render them extremely attractive candidates for potential employers, for professional programs in fields such as business, law, and medicine, and for graduate programs in traditional and interdisciplinary departments.

### 3.10.3 Major Concentrations

<table>
<thead>
<tr>
<th>African Studies</th>
<th>section 3.11.4.5: Bachelor of Arts (B.A.) - Major Concentration African Studies (36 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthropology</td>
<td>section 3.11.5.7: Bachelor of Arts (B.A.) - Major Concentration Anthropology (36 credits)</td>
</tr>
<tr>
<td>Art History</td>
<td>section 3.11.6.6: Bachelor of Arts (B.A.) - Major Concentration Art History (36 credits)</td>
</tr>
<tr>
<td>Canadian Studies</td>
<td>section 3.11.8.5: Bachelor of Arts (B.A.) - Major Concentration Canadian Studies (36 credits)</td>
</tr>
<tr>
<td>Classics</td>
<td>section 3.11.10.6: Bachelor of Arts (B.A.) - Major Concentration Classics (36 credits)</td>
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<tr>
<td>Computer Science</td>
<td>section 3.11.12.5: Bachelor of Arts (B.A.) - Major Concentration Computer Science (36 credits)</td>
</tr>
<tr>
<td>East Asian Studies</td>
<td>section 3.11.13.7: Bachelor of Arts (B.A.) - Major Concentration East Asian Studies (36 credits)</td>
</tr>
<tr>
<td>Economics</td>
<td>section 3.11.14.5: Bachelor of Arts (B.A.) - Major Concentration Economics (36 credits)</td>
</tr>
<tr>
<td>English - Literature</td>
<td>section 3.11.17.9: Bachelor of Arts (B.A.) - Major Concentration English - Literature (36 credits)</td>
</tr>
<tr>
<td>English - Drama and Theatre</td>
<td>section 3.11.17.10: Bachelor of Arts (B.A.) - Major Concentration English - Drama and Theatre (36 credits)</td>
</tr>
<tr>
<td>English - Cultural Studies</td>
<td>section 3.11.17.11: Bachelor of Arts (B.A.) - Major Concentration English - Cultural Studies (36 credits)</td>
</tr>
<tr>
<td>Geography</td>
<td>section 3.11.23.7: Bachelor of Arts (B.A.) - Major Concentration Geography (37 credits)</td>
</tr>
<tr>
<td>Geography (Urban Systems)</td>
<td>section 3.11.23.8: Bachelor of Arts (B.A.) - Major Concentration Geography (Urban Systems) (36 credits)</td>
</tr>
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<td>German Language and Literature</td>
<td>section 3.11.24.10: Bachelor of Arts (B.A.) - Major Concentration German Studies - Language and Literature (36 credits)</td>
</tr>
<tr>
<td>German Literature and Culture</td>
<td>section 3.11.24.11: Bachelor of Arts (B.A.) - Major Concentration German Studies - Literature and Culture (36 credits)</td>
</tr>
<tr>
<td>German Studies, Contemporary</td>
<td>section 3.11.24.11: Bachelor of Arts (B.A.) - Major Concentration German Studies - Literature and Culture (36 credits)</td>
</tr>
<tr>
<td>Hispanic Languages</td>
<td>section 3.11.25.7: Bachelor of Arts (B.A.) - Major Concentration Hispanic Studies - Languages (36 credits)</td>
</tr>
<tr>
<td>Hispanic Literature and Culture</td>
<td>section 3.11.25.8: Bachelor of Arts (B.A.) - Major Concentration Hispanic Studies - Literature and Culture (36 credits)</td>
</tr>
<tr>
<td>History</td>
<td>section 3.11.26.6: Bachelor of Arts (B.A.) - Major Concentration History (36 credits)</td>
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<tr>
<td>Humanistic Studies</td>
<td>see section 3.11.28: Humanistic Studies (HMST)</td>
</tr>
<tr>
<td>International Development Studies</td>
<td>section 3.11.30.5: Bachelor of Arts (B.A.) - Major Concentration International Development Studies (36 credits)</td>
</tr>
<tr>
<td>Italian Studies</td>
<td>section 3.11.32.5: Bachelor of Arts (B.A.) - Major Concentration Italian Studies (36 credits)</td>
</tr>
<tr>
<td>Jewish Studies</td>
<td>section 3.11.33.6: Bachelor of Arts (B.A.) - Major Concentration Jewish Studies (36 credits)</td>
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</tbody>
</table>
Langue et littérature françaises - Études et pratiques littéraires, section 3.11.22.10: Bachelor of Arts (B.A.) - Concentration majeure langue et littérature françaises - Études et pratiques littéraires (36 crédits)

Langue et littérature françaises - Traduction, section 3.11.22.11: Bachelor of Arts (B.A.) - Concentration majeure langue et littérature françaises - Traduction (36 crédits)

Latin-American Studies, section 3.11.34.5: Bachelor of Arts (B.A.) - Major Concentration Latin American Studies (36 credits)

Linguistics, section 3.11.35.7: Bachelor of Arts (B.A.) – Major Concentration Linguistics (36 credits)

Mathematics, section 3.11.36.6: Bachelor of Arts (B.A.) - Major Concentration Mathematics (36 credits)

Middle East Studies, section 3.11.37.6: Bachelor of Arts (B.A.) - Major Concentration Middle East Studies (36 credits)

Music, section 3.11.38.7: Bachelor of Arts (B.A.) - Major Concentration Music (36 credits)

North American Studies, section 3.11.39.5: Bachelor of Arts (B.A.) - Major Concentration North American Studies (36 credits)

Philosophy, section 3.11.40.5: Bachelor of Arts (B.A.) - Major Concentration Philosophy (36 credits)

Philosophy and Western Religions, section 3.11.41.5: Bachelor of Arts (B.A.) - Major Concentration Philosophy and Western Religions (36 credits)

Political Science, section 3.11.42.14: Bachelor of Arts (B.A.) - Major Concentration Political Science (36 credits)

Psychology, section 3.11.43.6: Bachelor of Arts (B.A.) – Major Concentration Psychology (36 credits)

Quebec Studies, section 3.11.44.6: Bachelor of Arts (B.A.) - Major Concentration Quebec Studies / La concentration Majeur en Études sur le Québec (36 credits)

Russian, section 3.11.46.6: Bachelor of Arts (B.A.) - Major Concentration Russian (36 credits)

Scripts and Interpretations - see Religious Studies (Arts), section 3.11.45.8: Bachelor of Arts (B.A.)- Major Concentration Scriptures and Interpretations (36 credits)

Sociology, section 3.11.51.6: Bachelor of Arts (B.A.) - Major Concentration Sociology (36 credits)

Software Engineering - see Computer Science, section 3.11.12.6: Bachelor of Arts (B.A.) - Major Concentration Software Engineering (36 credits) new

Women's Studies, section 3.11.52.5: Bachelor of Arts (B.A.) - Major Concentration Women's Studies (36 credits)

World Religions - see Religious Studies (Arts), section 3.11.45.7: Bachelor of Arts (B.A.) - Major Concentration World Religions (36 credits)

3.10.4 Faculty Programs

Industrial Relations, section 3.11.29.5: Bachelor of Arts (B.A.) - Faculty Program Industrial Relations (54 credits)

Environment - see McGill School of Environment > B.A. Faculty Program in Environment

3.10.5 Honours Programs

Anthropology, section 3.11.5.8: Bachelor of Arts (B.A.) - Honours Anthropology (60 credits)

Art History, section 3.11.6.7: Bachelor of Arts (B.A.) - Honours Art History (60 credits)

Canadian Studies, section 3.11.8.6: Bachelor of Arts (B.A.) – Honours Canadian Studies (57 credits)

Classics, section 3.11.10.7: Bachelor of Arts (B.A.) - Honours Classics (60 credits)

East Asian Studies, section 3.11.13.8: Bachelor of Arts (B.A.) - Honours East Asian Studies (60 credits)

Economics, section 3.11.14.6: Bachelor of Arts (B.A.) - Honours Economics (42 credits)

English (Literature), section 3.11.17.12: Bachelor of Arts (B.A.) - Honours English - Literature (60 credits)

English (Drama and Theatre), section 3.11.17.13: Bachelor of Arts (B.A.) - Honours English - Drama and Theatre (60 credits)

Engilsh (Cultural Studies), section 3.11.17.14: Bachelor of Arts (B.A.) – Honours English – Cultural Studies (60 credits)

Environment - see McGill School of Environment > section 7.13.1: Bachelor of Arts (B.A.) - Honours Environment (60 credits)

Geography, section 3.11.23.9: Bachelor of Arts (B.A.) - Honours Geography (61 credits)

Geography - Urban Systems, section 3.11.23.10: Bachelor of Arts (B.A.) - Honours Urban Systems (60 credits)

German Studies, section 3.11.24.12: Bachelor of Arts (B.A.) - Honours German Studies (60 credits)
Hispanic Studies, section 3.11.25.9: Bachelor of Arts (B.A.) - Honours Hispanic Studies (60 credits)

History, section 3.11.26.7: Bachelor of Arts (B.A.) - Honours History (60 credits)

International Development Studies, section 3.11.30.6: Bachelor of Arts (B.A.) - Honours International Development Studies (57 credits)

Italian Studies (Literature), section 3.11.32.6: Bachelor of Arts (B.A.) - Honours Italian Studies (54 credits)

Jewish Studies, section 3.11.33.7: Bachelor of Arts (B.A.) - Honours Jewish Studies (60 credits)

Langue et littérature françaises - Études et pratiques littéraires, section 3.11.22.12: Bachelor of Arts (B.A.) - Spécialisation en langue et littérature françaises - Études et pratiques littéraires (54 credits)

Langue et littérature françaises - Traduction, section 3.11.22.13: Bachelor of Arts (B.A.) - Spécialisation en langue et littérature françaises - Traduction (54 credits)

Latin American and Caribbean Studies - Area, section 3.11.34.6: Bachelor of Arts (B.A.) - Honours Latin American and Caribbean Studies - Area (60 credits)

Latin American and Caribbean Studies - Thematic, section 3.11.34.7: Bachelor of Arts (B.A.) - Honours Latin American and Caribbean Studies - Thematic (60 credits)

Linguistics, section 3.11.35.8: Bachelor of Arts (B.A.) - Honours Linguistics (60 credits)

Mathematics - see Faculty of Science > section 12.14.21.12: Bachelor of Science (B.Sc.) - Honours Mathematics (60 credits)

Middle East Studies, section 3.11.37.7: Bachelor of Arts (B.A.) - Honours Middle East Studies (60 credits)

Philosophy, section 3.11.40.6: Bachelor of Arts (B.A.) - Honours Philosophy (60 credits)

Philosophy and Western Religions, section 3.11.41.6: Bachelor of Arts (B.A.) - Honours Philosophy and Western Religions (60 credits)

Political Science, section 3.11.42.15: Bachelor of Arts (B.A.) - Honours Political Science (54 credits)

Psychology, section 3.11.43.7: Bachelor of Arts (B.A.) - Honours Psychology (60 credits)

Religious Studies - Asian Religions, section 3.11.45.9: Bachelor of Arts (B.A.) - Honours Religious Studies - Asian Religions (60 credits)

Religious Studies - Western Religions, section 3.11.45.10: Bachelor of Arts (B.A.) - Honours Religious Studies - Western Religions (60 credits)

Russian, section 3.11.46.7: Bachelor of Arts (B.A.) - Honours Russian (60 credits)

Sociology, section 3.11.51.7: Bachelor of Arts (B.A.) - Honours Sociology (51 credits)

Women's Studies, section 3.11.52.6: Bachelor of Arts (B.A.) - Honours Women's Studies (57 credits)

### 3.10.6 Joint Honours Programs

There are two types of Joint Honours programs available in the Faculty of Arts:

- fully integrated programs such as Mathematics and Computer Science.
- programs that are created by combining the Joint Honours program components from two Arts disciplines. Students must register for both Joint Honours program components. Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable).

Students can choose Joint Honours program components from any two of the following disciplines:

Accounting (can only be combined with Economics), section 3.11.14.8: Bachelor of Arts (B.A.) - Joint Honours Component Economics / Joint Honours Component Accounting (60 credits)

Anthropology, section 3.11.5.9: Bachelor of Arts (B.A.) - Joint Honours Component Anthropology (36 credits)

Art History, section 3.11.6.8: Bachelor of Arts (B.A.) - Joint Honours Component Art History (36 credits)

Canadian Studies, section 3.11.8.7: Bachelor of Arts (B.A.) – Joint Honours Component Canadian Studies (36 credits)

Classics, section 3.11.10.8: Bachelor of Arts (B.A.) - Joint Honours Component Classics (36 credits)

East Asian Studies, section 3.11.13.9: Bachelor of Arts (B.A.) - Joint Honours Component East Asian Studies (36 credits)

Economics, section 3.11.14.7: Bachelor of Arts (B.A.) - Joint Honours Component Economics (30 credits)

English - Cultural Studies, section 3.11.17.17: Bachelor of Arts (B.A.) - Joint Honours Component English - Cultural Studies (36 credits)

English - Drama and Theatre, section 3.11.17.16: Bachelor of Arts (B.A.) - Joint Honours Component English - Drama and Theatre (36 credits)

English - Literature, section 3.11.17.15: Bachelor of Arts (B.A.) - Joint Honours Component English - Literature (36 credits)
Revision, August 2011. Start of revision.
Environment – see McGill School of Environment > section 7.14.1: Bachelor of Arts (B.A.) - Joint Honours Component Environment (36 credits) new
Revision, August 2011. End of revision.

Finance (can only be combined with Economics), section 3.11.14.9: Bachelor of Arts (B.A.) - Joint Honours Component Economics / Joint Honours Component Finance (60 credits)

Geography, section 3.11.23.11: Bachelor of Arts (B.A.) - Joint Honours Component Geography (36 credits)

German Studies, section 3.11.24.13: Bachelor of Arts (B.A.) - Joint Honours Component German Studies (36 credits)

Hispanic Studies, section 3.11.25.10: Bachelor of Arts (B.A.) - Joint Honours Component Hispanic Studies (36 credits)

History, section 3.11.26.8: Bachelor of Arts (B.A.) - Joint Honours Component History (36 credits)

International Development Studies, section 3.11.30.7: Bachelor of Arts (B.A.) - Joint Honours Component International Development Studies (36 credits)

Italian Studies, section 3.11.32.7: Bachelor of Arts (B.A.) - Joint Honours Component Italian Studies (36 credits)

Jewish Studies, section 3.11.33.8: Bachelor of Arts (B.A.) - Joint Honours Component Jewish Studies (36 credits)

Langue et littérature françaises - Études et pratiques littéraires, section 3.11.22.14: Bachelor of Arts (B.A.) - Double Spécialisation en langue et littérature françaises - Études et pratiques littéraires (36 crédits)

Langue et littérature françaises - Traduction, section 3.11.22.15: Bachelor of Arts (B.A.) - Double Spécialisation en langue et littérature françaises - Traduction (36 crédits)

Linguistics, section 3.11.35.9: Bachelor of Arts (B.A.) – Joint Honours Component Linguistics (36 credits)

Mathematics, section 3.11.36.7: Bachelor of Arts (B.A.) - Joint Honours Component Mathematics (36 credits)

Middle East Studies, section 3.11.37.8: Bachelor of Arts (B.A.) - Joint Honours Component Middle East Studies (36 credits)

Philosophy, section 3.11.40.7: Bachelor of Arts (B.A.) - Joint Honours Component Philosophy (36 credits)

Philosophy and Western Religions, section 3.11.41.7: Bachelor of Arts (B.A.) - Joint Honours Component Philosophy and Western Religions (36 credits)

Political Science, section 3.11.42.16: Bachelor of Arts (B.A.) - Joint Honours Component Political Science (36 credits)

Psychology, section 3.11.43.8: Bachelor of Arts (B.A.) - Joint Honours Component Psychology (36 credits)

Religious Studies - Asian Religions, section 3.11.45.11: Bachelor of Arts (B.A.) – Joint Honours Component Religious Studies – Asian Religions (36 credits)

Religious Studies - Western Religions, section 3.11.45.12: Bachelor of Arts (B.A.) - Joint Honours Component Religious Studies - Western Religions (36 credits)

Russian, section 3.11.46.8: Bachelor of Arts (B.A.) - Joint Honours Component Russian (36 credits)

Sociology, section 3.11.51.8: Bachelor of Arts (B.A.) - Joint Honours Component Sociology (36 credits)

Women's Studies, section 3.11.52.7: Bachelor of Arts (B.A.) - Joint Honours Component Women's Studies (36 credits)

3.10.7 Minor Concentrations

African Studies, section 3.11.4.4: Bachelor of Arts (B.A.) - Minor Concentration African Studies (18 credits)

Anthropology, section 3.11.5.6: Bachelor of Arts (B.A.) - Minor Concentration Anthropology (18 credits)

Art History, section 3.11.6.5: Bachelor of Arts (B.A.) - Minor Concentration Art History (18 credits)

Behavioural Science - see Psychology, section 3.11.43.5: Bachelor of Arts (B.A.) – Minor Concentration Behavioural Science (18 credits)

Canadian Ethnic and Racial Studies, section 3.11.7.4: Bachelor of Arts (B.A.) - Minor Concentration Canadian Ethnic and Racial Studies (18 credits)

Canadian Studies, section 3.11.8.4: Bachelor of Arts (B.A.) – Minor Concentration Canadian Studies (18 credits)

Catholic Studies, section 3.11.9.4: Bachelor of Arts (B.A.) - Minor Concentration Catholic Studies (18 credits)

Classics, section 3.11.10.4: Bachelor of Arts (B.A.) - Minor Concentration Classics (18 credits)

Communication Studies, section 3.11.6.9: Bachelor of Arts (B.A.) - Minor Concentration Communication Studies (18 credits)

Comparative Politics - see Political Science, section 3.11.42.8: Bachelor of Arts (B.A.) - Minor Concentration Comparative Politics (18 credits)

Computer Science, section 3.11.12.3: Bachelor of Arts (B.A.) - Minor Concentration Computer Science (18 credits)
Computer Science, Supplementary, section 3.11.12.4: Bachelor of Arts (B.A.) - Supplementary Minor Concentration in Computer Science (18 credits)

East Asian Language and Literature, section 3.11.13.4: Bachelor of Arts (B.A.) - Minor Concentration East Asian Language and Literature (18 credits)

East Asian Cultural Studies, section 3.11.13.5: Bachelor of Arts (B.A.) - Minor Concentration East Asian Cultural Studies (18 credits)

East Asian Language, Supplementary, section 3.11.13.6: Bachelor of Arts (B.A.) - Minor Concentration Supplementary East Asian Language (18 credits)

Economics, section 3.11.14.4: Bachelor of Arts (B.A.) - Minor Concentration Economics (18 credits)

Educational Psychology, section 3.11.16.3: Bachelor of Arts (B.A.) - Minor Concentration Educational Psychology (18 credits)

Education for Arts Students, section 3.11.15.3: Bachelor of Arts (B.A.) - Minor Concentration Education for Arts Students (18 credits)

English - Literature, section 3.11.17.6: Bachelor of Arts (B.A.) - Minor Concentration English - Literature (18 credits)

English - Drama and Theatre, section 3.11.17.7: Bachelor of Arts (B.A.) - Minor Concentration English - Drama and Theatre (18 credits)

English - Cultural Studies, section 3.11.17.8: Bachelor of Arts (B.A.) - Minor Concentration English – Cultural Studies (18 credits)

Environment - see McGill School of Environment > section 7.8.1: Bachelor of Arts (B.A.) – Minor Concentration Environment (18 credits)

Finance for Non-Management Students - see Desautels Faculty of Management > section 9.9.7.1: Minor Finance (For Non-Management Students) (18 credits)

Geographic Information Systems, section 3.11.23.5: Bachelor of Arts (B.A.) - Minor Concentration Geographic Information Systems (18 credits)

Geography, section 3.11.23.4: Bachelor of Arts (B.A.) - Minor Concentration Geography (18 credits)

Geography (Urban Systems), section 3.11.23.6: Bachelor of Arts (B.A.) - Minor Concentration Geography (Urban Systems) (18 credits)

German Language, section 3.11.24.6: Bachelor of Arts (B.A.) - Minor Concentration German Language (18 credits)

German Literature, section 3.11.24.7: Bachelor of Arts (B.A.) - Minor Concentration German Literature (18 credits)

German Literature and Culture in Translation, section 3.11.24.8: Bachelor of Arts (B.A.) - Minor Concentration German Literature and Culture in Translation (18 credits)

Hispanic Languages, section 3.11.25.5: Bachelor of Arts (B.A.) - Minor Concentration Hispanic Languages (18 credits)

Hispanic Literature and Culture, section 3.11.25.6: Bachelor of Arts (B.A.) - Minor Concentration Hispanic Literature and Culture (18 credits)

History, section 3.11.26.5: Bachelor of Arts (B.A.) - Minor Concentration History (18 credits)

History and Philosophy of Science, section 3.11.27.4: Bachelor of Arts (B.A.) - Minor Concentration History and Philosophy of Science (18 credits)

International Development Studies, section 3.11.30.4: Bachelor of Arts (B.A.) - Minor Concentration International Development Studies (18 credits)

International Relations - see Political Science, section 3.11.42.9: Bachelor of Arts (B.A.) - Minor Concentration International Relations (18 credits)

Islamic Studies, section 3.11.31.4: Bachelor of Arts (B.A.) - Minor Concentration Islamic Studies (18 credits)

Italian Studies, section 3.11.32.4: Bachelor of Arts (B.A.) - Minor Concentration Italian Studies (18 credits)

Jewish Studies, section 3.11.33.5: Bachelor of Arts (B.A.) - Minor Concentration Jewish Studies (18 credits)

Jewish Law, section 3.11.33.4: Bachelor of Arts (B.A.) - Minor Concentration Jewish Law (18 credits)

Langue et littérature françaises - Critique littéraire, section 3.11.22.9: Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises - Critique littéraire (18 crédits)

Langue et littérature françaises - Études et pratiques littéraires, section 3.11.22.7: Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises - Études et pratiques littéraires (18 crédits)

Langue et littérature françaises - Langue française, section 3.11.22.5: Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises - Langue française (18 crédits)

Langue et littérature françaises - Langue française et traduction, section 3.11.22.6: Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises - Langue française et traduction (18 crédits)

Langue et littérature françaises - Traduction, section 3.11.22.8: Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises - Traduction (18 crédits)

Linguistics, section 3.11.35.6: Bachelor of Arts (B.A.) – Minor Concentration Linguistics (18 credits)

Management for Non-Management Students - see Desautels Faculty of Management > section 9.9.7.2: Minor Management (For Non-Management Students) (18 credits)

Marketing for Non-Management Students - see Desautels Faculty of Management > section 9.9.7.6: Minor Marketing (For Non-Management Students) (18 credits)
Established in 1843, the Faculty of Arts is one of the oldest in Canada and remains the largest at McGill. With over 6,000 full-time students and over 280 full-time professors, the Faculty offers several hundred courses in many disciplines.

The Bachelor of Arts degree integrates the Humanities, Social Sciences, Languages, and a wide range of Interdisciplinary Studies into a coherent academic program. Students are also permitted great program flexibility. Students may concentrate on one Arts discipline while obtaining minor concentrations in other disciplines in Arts or in other faculties.

The Faculty also offers programs leading to the degree of Bachelor of Social Work (B.S.W.) and to a Diploma in Environment from the McGill School of Environment.

3.11 Academic Programs

Established in 1843, the Faculty of Arts is one of the oldest in Canada and remains the largest at McGill. With over 6,000 full-time students and over 280 full-time professors, the Faculty offers several hundred courses in many disciplines.

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The Faculty also offers programs leading to the degree of Bachelor of Social Work (B.S.W.) and to a Diploma in Environment from the McGill School of Environment.

3.11.1 First-Year Seminars

Revision, August 2011. Start of revision.
A complete list of Arts First-Year Seminars is available on the Arts OASIS website. See Class Schedule for descriptions.

Please see section 3.7.5.9: First-Year Seminar Courses to determine if you qualify to register for an FYS course.

Revision, August 2011. End of revision.

3.11.2 Faculty of Arts Internship Program

Most departments in the Faculty of Arts offer undergraduate students the opportunity to earn university credit while gaining experience in areas relevant to their fields of study. Open to U2 and U3 students, normally after completing 30 credits of a 90-credit program or 45 credits of a 96- to 120-credit program, normally with a minimum CGPA of 2.7, and permission of the departmental internship adviser. Arts internships involve a minimum of 150 hours of work with an approved host institution or organization. Students are required to submit a major topical paper that discusses an aspect of the internship from an academic perspective.

For more information about the Faculty of Arts Internship Program, see www.mcgill.ca/arts-internships.

3.11.3 Field Studies and Study Abroad Programs

The Faculty of Arts offers students many field studies and study abroad opportunities. For more information, refer to the Field Studies and Study Abroad section of this publication.

3.11.4 African Studies (AFRI)

3.11.4.1 Location

General Inquiries:
Institute for the Study of International Development
Peterson Hall, Room 126
3460 McTavish Street
Montreal, Quebec H3A 1X9

Telephone: 514-398-4804
Fax: 514-398-8432
Email: ids@mcgill.ca
Website: www.mcgill.ca/isid

Adviser:
Lisa Stanischewski

3.11.4.2 About African Studies

The African Studies program was established in 1969 and was the first of its kind in Canada. It offers interdisciplinary courses leading to a minor or major concentration for students seeking to acquire a deeper understanding of the African continent and its diverse peoples. Students will acquire an appreciation of the contributions of Africa to world culture and civilization, and an awareness of the continent's current struggle to achieve development.

3.11.4.3 African Studies (AFRI) Faculty

Program Chair
J. Galaty (Anthropology)

Program Committee
G. Campbell (History and Classical Studies)
C. Chapman (Anthropology/MSE)
K. Fallon (Sociology)
J. Jorgensen (Desautels Faculty of Management)
M. Lange (Sociology)
K. Medani (Political Science)
T. Meredith (Geography)
M. Popescu (English)
Program Committee

J. Unruh (Geography)

3.11.4.4 Bachelor of Arts (B.A.) - Minor Concentration African Studies (18 credits)

The Minor Concentration African Studies is available for those students majoring in a discipline of the Faculty of Arts who wish to acquire interdisciplinary knowledge of Africa.

This program may be expanded to the Major Concentration African Studies.

Required Courses (6 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>AFRI 200</td>
<td>(3)</td>
<td>Introduction to African Studies</td>
</tr>
<tr>
<td>AFRI 598</td>
<td>(3)</td>
<td>Research Seminar in African Studies</td>
</tr>
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</table>

Complementary Courses (12 credits)

12 credits selected as follows:

3 credits from the Group A or "core" course list and

9 credits from the Group B course list drawn from at least 2 disciplines with no more than 6 credits from any one discipline.

If courses listed below are not available in any particular year, modifications to the program may be made with the approval of the program adviser.

Students who wish to obtain program credit for other courses with African content should seek approval from the Program Adviser. African content may be found in certain courses offered in Islamic Studies and Religious Studies.

Group A

3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 322</td>
<td>(3)</td>
<td>Social Change in Modern Africa</td>
</tr>
<tr>
<td>HIST 200</td>
<td>(3)</td>
<td>Introduction to African History</td>
</tr>
<tr>
<td>HIST 201</td>
<td>(3)</td>
<td>Modern African History</td>
</tr>
<tr>
<td>POLI 324</td>
<td>(3)</td>
<td>Developing Areas/Africa</td>
</tr>
</tbody>
</table>

Group B

9 credits from the Group B course lists below drawn from at least 2 disciplines with no more than 6 credits from any one discipline.

African Studies

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFRI 401</td>
<td>(3)</td>
<td>Swahili Language and Culture</td>
</tr>
<tr>
<td>AFRI 480</td>
<td>(3)</td>
<td>Special Topics 01</td>
</tr>
<tr>
<td>AFRI 481</td>
<td>(3)</td>
<td>Special Topics 02</td>
</tr>
<tr>
<td>AFRI 499</td>
<td>(3)</td>
<td>Arts Internships: African Studies</td>
</tr>
</tbody>
</table>

Anthropology

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 212</td>
<td>(3)</td>
<td>Anthropology of Development</td>
</tr>
<tr>
<td>ANTH 301</td>
<td>(3)</td>
<td>Nomadic Pastoralists</td>
</tr>
<tr>
<td>ANTH 321</td>
<td>(3)</td>
<td>Peoples and Cultures of Africa</td>
</tr>
<tr>
<td>ANTH 322</td>
<td>(3)</td>
<td>Social Change in Modern Africa</td>
</tr>
<tr>
<td>ANTH 335</td>
<td>(3)</td>
<td>Ancient Egyptian Civilization</td>
</tr>
<tr>
<td>ANTH 345</td>
<td>(3)</td>
<td>Prehistory of Africa</td>
</tr>
<tr>
<td>ANTH 411</td>
<td>(3)</td>
<td>Primate Studies &amp; Conservation</td>
</tr>
<tr>
<td>ANTH 416</td>
<td>(3)</td>
<td>Environment/Development: Africa</td>
</tr>
<tr>
<td>Course Code</td>
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<td>Course Title</td>
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<tr>
<td>ANTH 445</td>
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<td>Property and Land Tenure</td>
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<tr>
<td><strong>Economics</strong></td>
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<td></td>
</tr>
<tr>
<td>ECON 208</td>
<td>(3)</td>
<td>Microeconomic Analysis and Applications</td>
</tr>
<tr>
<td>ECON 313</td>
<td>(3)</td>
<td>Economic Development 1</td>
</tr>
<tr>
<td>ECON 416</td>
<td>(3)</td>
<td>Topics in Economic Development 2</td>
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<tr>
<td><strong>English</strong></td>
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<td>* Note: Course is counted only when African materials are taught.</td>
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<td>ENGL 320*</td>
<td>(3)</td>
<td>Postcolonial Literature</td>
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<tr>
<td>ENGL 352*</td>
<td>(3)</td>
<td>Theories of Difference</td>
</tr>
<tr>
<td>ENGL 421</td>
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<td>African Literature</td>
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<td><strong>Geography</strong></td>
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<td>GEOG 216</td>
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<td>Geography of the World Economy</td>
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<tr>
<td>GEOG 403</td>
<td>(3)</td>
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<td>Environmental Management 2</td>
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<td>GEOG 408</td>
<td>(3)</td>
<td>Geography of Development</td>
</tr>
<tr>
<td>GEOG 410</td>
<td>(3)</td>
<td>Geography of Underdevelopment: Current Problems</td>
</tr>
<tr>
<td>GEOG 416</td>
<td>(3)</td>
<td>Africa South of the Sahara</td>
</tr>
<tr>
<td><strong>History</strong></td>
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<tr>
<td>HIST 200</td>
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<td>HIST 201</td>
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<td>Modern African History</td>
</tr>
<tr>
<td>HIST 374</td>
<td>(3)</td>
<td>West Africa since 1800</td>
</tr>
<tr>
<td>HIST 381</td>
<td>(3)</td>
<td>Colonial Africa: Health/Disease</td>
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<td>HIST 382</td>
<td>(3)</td>
<td>History of South Africa</td>
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<tr>
<td>HIST 396</td>
<td>(3)</td>
<td>Disease in Africa Since 1960</td>
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<tr>
<td>HIST 413</td>
<td>(3)</td>
<td>Independent Reading</td>
</tr>
<tr>
<td>HIST 486D1</td>
<td>(3)</td>
<td>Topics: African Social History</td>
</tr>
<tr>
<td>HIST 486D2</td>
<td>(3)</td>
<td>Topics: African Social History</td>
</tr>
<tr>
<td>HIST 528</td>
<td>(3)</td>
<td>Indian Ocean World Slave Trade</td>
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<td><strong>Islamic Studies</strong></td>
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<tr>
<td>ISLA 360</td>
<td>(3)</td>
<td>Islam and Politics</td>
</tr>
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<td>ISLA 410</td>
<td>(3)</td>
<td>History: Middle-East 1798-1918</td>
</tr>
<tr>
<td>ISLA 521D1</td>
<td>(4.5)</td>
<td>Introductory Arabic</td>
</tr>
<tr>
<td>ISLA 521D2</td>
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<td>Introductory Arabic</td>
</tr>
<tr>
<td><strong>Political Science</strong></td>
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<td>* Note: Course is counted only when African materials are taught.</td>
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</table>
3.11.4.5 Bachelor of Arts (B.A.) - Major Concentration African Studies (36 credits)

The Major Concentration African Studies provides students with an interdisciplinary approach to the study of the African continent.

Students wishing to major in African Studies should consult the Program Adviser at the beginning of their first academic year. In the African Studies Major concentration, students will be encouraged to identify an area within a discipline of the Faculty, taking as many relevant courses as possible in that field.

Required Courses (6 credits)

AFRI 200 (3) Introduction to African Studies
AFRI 598 (3) Research Seminar in African Studies

Complementary Courses (30 credits)

30 credits selected as follows:
9 credits from the Group A or "core" course list and
21 credits from the Group B course list drawn from at least 3 disciplines with no more than 9 credits from any one discipline.

If courses listed below are not available in any particular year, modifications to the program may be made with the approval of the Program Adviser.

Students who wish to obtain program credit for other courses with African content should seek approval from the Program Adviser. African content may be found in certain courses offered in Islamic Studies and Religious Studies.

Group A

9 credits from:

ANTH 322 (3) Social Change in Modern Africa
HIST 200 (3) Introduction to African History
HIST 201 (3) Modern African History
POLI 324 (3) Developing Areas/Africa

Group B

21 credits from the Group B course lists below drawn from at least 3 disciplines with no more than 9 credits from any one discipline.

African Studies

AFRI 401 (3) Swahili Language and Culture
AFRI 480 (3) Special Topics 01
AFRI 481 (3) Special Topics 02
AFRI 499 (3) Arts Internships: African Studies
## Anthropology

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
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## Economics

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## English

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## Geography

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<td>GEOG 416</td>
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<td>Africa South of the Sahara</td>
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## History

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<tr>
<td>HIST 200</td>
<td>(3)</td>
<td>Introduction to African History</td>
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<tr>
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<td>Modern African History</td>
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</table>
Islamic Studies

ISLA 360  
(3)  
Islam and Politics

ISLA 410  
(3)  
History: Middle-East 1798-1918

ISLA 521D1 
(4.5)  
Introductory Arabic

ISLA 521D2 
(4.5)  
Introductory Arabic

Political Science

* Note: Course is counted only when African materials are taught.

POLI 227  
(3)  
Developing Areas/Introduction

POLI 324  
(3)  
Developing Areas/Africa

POLI 472  
(3)  
Developing Areas/Social Movements

POLI 522*  
(3)  
Seminar: Developing Areas

Sociology

SOCl 365  
(3)  
Health and Development

SOCl 370  
(3)  
Sociology: Gender and Development

SOCl 446  
(3)  
Colonialism and Society

SOCl 484  
(3)  
Emerging Democratic States

SOCl 513  
(3)  
Social Aspects HIV/AIDS in Africa

SOCl 550  
(3)  
Developing Societies

3.11.4.6 African Studies (AFRI) Related Programs and Study Semesters

3.11.4.6.1 African Field Study Semester

See Field Studies and Study Abroad > African Field Study Semester for details of the 15-credit interdisciplinary AFSS.

3.11.5 Anthropology (ANTh)

3.11.5.1 Location

Stephen Leacock Building, Room 718
855 Sherbrooke Street West
Montreal, Quebec H3A 2T7

Telephone: 514-398-4300
Fax: 514-398-7476
Website: www.mcgill.ca/anthropology

3.11.5.2 About Anthropology

The Honours program and Major concentration in Anthropology emphasize the similarity and diversity of human behaviour, understanding of social and cultural systems, and the processes of socio-cultural change from human origins to the present day. Within Anthropology, the Department concentrates on the fields of Archaeology and Socio-Cultural Anthropology.

Our programs serve as a useful background for those who are planning a career in law, medicine, foreign service, community organization, public administration, journalism, and teaching and research in social sciences and humanities. The Multi-track Major and Minor concentrations provide students with a solid grounding in anthropology as a whole, or in selected topical or sub-disciplinary areas, while allowing students to follow programs in other departments that suit their needs and interests. The Honours program provides a greater focus on Anthropology with substantial breadth and depth. The completion of an Honours program is an asset when applying to graduate or professional schools.

Students should have a CGPA of at least 3.30 to register in an Honours or Joint Honours program after their first year, and maintain it to graduate with an Honours degree. Graduation with a First Class Honours or Joint Honours degree requires a CGPA of 3.50 or better.
3.11.5.3 Core Courses

Core courses in Anthropology (350 level) provide students with essential knowledge of method and theory. They are more intensive than other 300-level courses, and are restricted to Anthropology program students in U2 standing or above.

3.11.5.4 Anthropology Minor Concentrations

The Minor concentration in Anthropology consists of 18 credits (six 3-credit courses) in the discipline and is designed to complement students' study in related disciplines or in interdisciplinary programs. The degree may enhance the employment profile of graduating students wishing to work in social services, in multicultural or multiethnic settings, in international development, aboriginal history, museum work, or in educational or media related professions.

Students should register in the Minor concentration prior to their second year of study at McGill. No credits taken in a minor may overlap with another degree program. The Minor concentration may be expanded into the single Anthropology Major concentration.

The Minor Concentration in Anthropological Archaeology and the Minor Concentration in Socio-Cultural Anthropology were retired at the end of 2004. Students enrolled in either one at that time should consult with a Departmental adviser.

3.11.5.5 Anthropology (ANTH) Faculty

Chair
Ronald W. Niezen

Professors
Colin Chapman; B.Sc., M.A., Ph.D.(Alta.) (joint appt. with McGill School of Environment)
Ronald W. Niezen; B.A.(Br. Col.), M.Phil., Ph.D.(Camb.)
Jérôme Rousseau; B.Sc., M.A.(Montr.), Ph.D.(Camb.)
Philip Carl Salzman; B.A.(Antioch), M.A., Ph.D.(Chic.)
Allan Young; B.A.(Penn.), M.A.(Wash.), Ph.D.(Penn.) (joint appt. with Social Studies of Medicine)

Associate Professors
Michael S. Bisson; B.A., Ph.D.(Calif.)
André Costopoulos; B.A.(McG.), M.A.(Montr.), Ph.D.(Oulu)
John G. Galaty; B.A.(Trin. Coll., Hartford), M.A., Ph.D.(Chic.)
Sandra T. Hyde; B.A.(Calif.-Santa Cruz), M.P.H.(Hawaii Pac.), Ph.D.(Calif., Berk.)
Kristin Norget; B.A.(Vic., BC), M.Phil., D.Phil.(Cant.)
James M. Savelle; B.Sc., M.Sc.(Ott.), M.A.(Ark.), Ph.D.(Alta.)
Colin H. Scott; B.A.(Regina), M.A., Ph.D.(McG.)

Assistant Professors
Gwen Bennett; B.A.(N'Western), M.A., Ph.D.(Calif.-LA) (joint appt. with East Asian Studies)
Nicole C. Couture; B.A.(Trent), M.A., Ph.D.(Chic.)
Eduardo Kohn; B.A.(Oberlin), M.A., Ph.D.(Wisc.)
Setrag Manoukian; B.A.(Venice), M.A., Ph.D.(Mich.) (joint appt. with Islamic Studies)
Margaret E. Stevenson; B.A.(N. Carolina), Ph.D.(Calif., Berk.)
Ismael Vaccaro; M.A., Ph.D.(Wash.) (joint appt. with MSE)

Associate Member
Tobias Rees; M.A.(Eberhard Karl-Universitat Tubingen), Diploma in Neuropharmacology(Inst. Pasteur, Paris, France), Ph.D.(Calif., Berk.)

Adjunct Members
Nadia Ferrara; B.A.(C’dia), M.A.(Vermont College), M.Sc.(McG.), Ph.D.(Montr.)
Vinh-Kim Nguyen; B.Sc.(McG.), M.D.(Montr.), M.A., Ph.D.(McG.)
3.11.5.6 Bachelor of Arts (B.A.) - Minor Concentration Anthropology (18 credits)

The Minor Concentration Anthropology permits students to explore the development and diversity of human beings and human society and culture through courses in human evolution, prehistoric archaeology, and socio-cultural anthropology. Students may include courses in all of these fields, or may focus on one or two.

This program may be expanded to the Major Concentration Anthropology.

Complementary Courses (18 credits)

200 Level

3-9 credits selected from the following list:

- ANTH 201 (3) Prehistoric Archaeology
- ANTH 202 (3) Comparative Cultures
- ANTH 203 (3) Human Evolution
- ANTH 204 (3) Anthropology of Meaning
- ANTH 205 (3) Cultures of the World
- ANTH 206 (3) Environment and Culture
- ANTH 207 (3) Ethnography Through Film
- ANTH 208 (3) Evolutionary Anthropology
- ANTH 209 (3) Anthropology of Religion
- ANTH 212 (3) Anthropology of Development
- ANTH 214 (3) Violence, Warfare, Culture
- ANTH 221 (3) Introduction to Urban Anthropology
- ANTH 222 (3) Legal Anthropology
- ANTH 227 (3) Medical Anthropology

Areas

3 credits from either one of the following area groups:

Ethnography

- ANTH 304 (3) Chinese Culture in Ethnography and Film
- ANTH 306 (3) Native Peoples' History in Canada
- ANTH 309 (3) Prehistory of Northern Europe
- ANTH 315 (3) Society/Culture: East Africa
- ANTH 321 (3) Peoples and Cultures of Africa
- ANTH 322 (3) Social Change in Modern Africa
- ANTH 326 (3) Anthropology of Latin America
- ANTH 327 (3) Peoples of South Asia
- ANTH 329 (3) Modern Chinese Society and Change
- ANTH 336 (3) Ethnography: North Eastern North America
- ANTH 337 (3) Mediterranean Society and Culture
- ANTH 338 (3) Native Peoples of North America
- ANTH 340 (3) Middle Eastern Society and Culture
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<tr>
<td>ANTH 415</td>
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<td>Problems in African Anthropology</td>
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<td>ANTH 416</td>
<td>(3)</td>
<td>Environment/Development: Africa</td>
</tr>
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<td>ANTH 422</td>
<td>(3)</td>
<td>Contemporary Latin American Culture &amp; Society</td>
</tr>
<tr>
<td>ANTH 427</td>
<td>(3)</td>
<td>Social Change in South Asia</td>
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<td>ANTH 436</td>
<td>(3)</td>
<td>North American Native Peoples</td>
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<td>ANTH 500</td>
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<td>Chinese Diversity and Diaspora</td>
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### Archaeology

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<td>ANTH 307</td>
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<td>Andean Prehistory</td>
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<td>ANTH 309</td>
<td>(3)</td>
<td>Prehistory of Northern Europe</td>
</tr>
<tr>
<td>ANTH 317</td>
<td>(3)</td>
<td>Prehistory of North America</td>
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<tr>
<td>ANTH 319</td>
<td>(3)</td>
<td>Inka Archaeology &amp; Ethnohistory</td>
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<tr>
<td>ANTH 330</td>
<td>(3)</td>
<td>Traditional Whaling Societies</td>
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<td>Early Prehistory: New World</td>
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<tr>
<td>ANTH 552</td>
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<td>Problems: Prehistory North Eastern America</td>
</tr>
</tbody>
</table>

6-12 credits from any 300-, 400-, or 500-level Anthropology courses.

### Bachelor of Arts (B.A.) - Major Concentration Anthropology (36 credits)

The Major concentration is especially appropriate for students who aim to take courses across several sub-disciplinary or topical concentrations, and for whom specialization is premature. There are no prerequisites for admission to the Major Concentration Anthropology. Students are encouraged to take a course in quantitative methods (listed under the Honours program), but this course cannot count as part of this concentration.

### Complementary Courses (36 credits)

#### 200 Level

6 credits selected from 200-level courses in Anthropology.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>ANTH 201</td>
<td>(3)</td>
<td>Prehistoric Archaeology</td>
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<tr>
<td>ANTH 202</td>
<td>(3)</td>
<td>Comparative Cultures</td>
</tr>
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<td>ANTH 203</td>
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<td>ANTH 204</td>
<td>(3)</td>
<td>Anthropology of Meaning</td>
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<tr>
<td>ANTH 205</td>
<td>(3)</td>
<td>Cultures of the World</td>
</tr>
<tr>
<td>ANTH 206</td>
<td>(3)</td>
<td>Environment and Culture</td>
</tr>
<tr>
<td>ANTH 207</td>
<td>(3)</td>
<td>Ethnography Through Film</td>
</tr>
<tr>
<td>ANTH 208</td>
<td>(3)</td>
<td>Evolutionary Anthropology</td>
</tr>
<tr>
<td>ANTH 209</td>
<td>(3)</td>
<td>Anthropology of Religion</td>
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<tr>
<td>ANTH 212</td>
<td>(3)</td>
<td>Anthropology of Development</td>
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<td>ANTH 214</td>
<td>(3)</td>
<td>Violence, Warfare, Culture</td>
</tr>
<tr>
<td>ANTH 221</td>
<td>(3)</td>
<td>Introduction to Urban Anthropology</td>
</tr>
</tbody>
</table>
Legal Anthropology (3)  
ANTH 222

Medical Anthropology (3)  
ANTH 227

Core (350 Level)  
6 credits, from the following Core courses (350 level):
(Note: These are restricted to students in any Anthropology program with U2 standing or above.)
ANTH 352 (3) History of Anthropological Theory  
ANTH 355 (3) Theories of Culture and Society  
ANTH 357 (3) Archaeological Methods  
ANTH 358 (3) The Process of Anthropological Research  
ANTH 359 (3) History of Archaeological Theory

Areas  
6 credits selected from Area courses:

Ethnography  
ANTH 304 (3) Chinese Culture in Ethnography and Film  
ANTH 306 (3) Native Peoples' History in Canada  
ANTH 309 (3) Prehistory of Northern Europe  
ANTH 315 (3) Society/Culture: East Africa  
ANTH 321 (3) Peoples and Cultures of Africa  
ANTH 322 (3) Social Change in Modern Africa  
ANTH 326 (3) Anthropology of Latin America  
ANTH 327 (3) Peoples of South Asia  
ANTH 329 (3) Modern Chinese Society and Change  
ANTH 336 (3) Ethnohistory: North Eastern North America  
ANTH 337 (3) Mediterranean Society and Culture  
ANTH 338 (3) Native Peoples of North America  
ANTH 340 (3) Middle Eastern Society and Culture  
ANTH 415 (3) Problems in African Anthropology  
ANTH 416 (3) Environment/Development: Africa  
ANTH 422 (3) Contemporary Latin American Culture & Society  
ANTH 427 (3) Social Change in South Asia  
ANTH 436 (3) North American Native Peoples  
ANTH 500 (3) Chinese Diversity and Diaspora

Archaeology  
ANTH 305 (3) Arctic Prehistory  
ANTH 307 (3) Andean Prehistory  
ANTH 309 (3) Prehistory of Northern Europe  
ANTH 317 (3) Prehistory of North America  
ANTH 319 (3) Inka Archaeology & Ethnohistory  
ANTH 330 (3) Traditional Whaling Societies
ANTH 331  (3) Prehistory of East Asia
ANTH 335  (3) Ancient Egyptian Civilization
ANTH 345  (3) Prehistory of Africa
ANTH 347  (3) Paleolithic Cultures
ANTH 348  (3) Early Prehistory: New World
ANTH 431  (3) Problems in East Asian Archaeology
ANTH 552  (3) Problems: Prehistory North Eastern America

400 Level
6 credits, two 400-level Anthropology courses.

Undergraduate Level
12 credits of additional undergraduate-level Anthropology courses of which no more than 6 credits may be at the 200 level.

3.11.5.8 Bachelor of Arts (B.A.) - Honours Anthropology (60 credits)
Honours students must maintain a GPA of 3.30 in their program courses and, according to Faculty regulations, a minimum CGPA of 3.00 in general.

Complementary (60 credits)
Honours students select their courses as specified below. Students may take a maximum of 9 credits at the 300 level or higher offered by other departments if they are directly related to their focus of study within Anthropology and are approved by their departmental program adviser.

200/300 Level
A maximum of 36 credits of 200- and 300-level courses (of which a maximum of 21 credits may be at the 200 level) selected from:

ANTH 201  (3) Prehistoric Archaeology
ANTH 202  (3) Comparative Cultures
ANTH 203  (3) Human Evolution
ANTH 204  (3) Anthropology of Meaning
ANTH 205  (3) Cultures of the World
ANTH 206  (3) Environment and Culture
ANTH 207  (3) Ethnography Through Film
ANTH 208  (3) Evolutionary Anthropology
ANTH 209  (3) Anthropology of Religion
ANTH 212  (3) Anthropology of Development
ANTH 214  (3) Violence, Warfare, Culture
ANTH 221  (3) Introduction to Urban Anthropology
ANTH 222  (3) Legal Anthropology
ANTH 227  (3) Medical Anthropology
ANTH 301  (3) Nomadic Pastoralists
ANTH 302  (3) New Horizons in Medical Anthropology
ANTH 303  (3) Ethnographies of Post-socialism
ANTH 305  (3) Arctic Prehistory
ANTH 306  (3) Native Peoples' History in Canada
ANTH 308  (3) Political Anthropology 01
ANTH 309  (3) Prehistory of Northern Europe
ANTH 310  (3) Anthropology of the Arts
ANTH 311 (3) Primate Behaviour and Ecology  
ANTH 312 (3) Zooarchaeology  
ANTH 313 (3) Early Civilizations  
ANTH 314 (3) Psychological Anthropology 01  
ANTH 315 (3) Society/Culture: East Africa  
ANTH 316 (3) Anthropology of Complex Societies  
ANTH 317 (3) Prehistory of North America  
ANTH 319 (3) Inka Archaeology & Ethnohistory  
ANTH 320 (3) Social Evolution  
ANTH 321 (3) Peoples and Cultures of Africa  
ANTH 322 (3) Social Change in Modern Africa  
ANTH 324 (3) Economic Anthropology 01  
ANTH 326 (3) Anthropology of Latin America  
ANTH 327 (3) Peoples of South Asia  
ANTH 329 (3) Modern Chinese Society and Change  
ANTH 331 (3) Prehistory of East Asia  
ANTH 333 (3) Class and Ethnicity  
ANTH 334 (3) Kinship and Social Structure  
ANTH 335 (3) Ancient Egyptian Civilization  
ANTH 336 (3) Ethnohistory: North Eastern North America  
ANTH 337 (3) Mediterranean Society and Culture  
ANTH 338 (3) Native Peoples of North America  
ANTH 339 (3) Ecological Anthropology  
ANTH 340 (3) Middle Eastern Society and Culture  
ANTH 341 (3) Women in Cross-cultural Perspective  
ANTH 342 (3) Gender, Inequality and the State  
ANTH 344 (3) Quantitative Approaches to Anthropology  
ANTH 345 (3) Prehistory of Africa  
ANTH 346 (3) Development in Agrarian Societies  
ANTH 347 (3) Paleolithic Cultures  
ANTH 348 (3) Early Prehistory: New World  
ANTH 380 (3) Special Topic 1  
ANTH 381 (3) Special Topic 2  
ANTH 382 (3) Special Topic 3  
ANTH 383 (3) Special Topic 4

**Core (350 Level)**

A minimum of 9 credits of core courses at the 350 level selected from:

ANTH 352 (3) History of Anthropological Theory  
ANTH 355 (3) Theories of Culture and Society  
ANTH 357 (3) Archaeological Methods  
ANTH 358 (3) The Process of Anthropological Research  
ANTH 359 (3) History of Archaeological Theory
### 400/500 Level

A minimum of 9 credits of 400- or 500-level courses selected from:

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<td>Topics in Ethnography 1</td>
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<td>ANTH 403</td>
<td>Current Issues in Archaeology</td>
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<td>Special Topic 10</td>
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<td>Chinese Diversity and Diaspora</td>
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<td>Advanced Topics: Archaeological Research</td>
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<td>ANTH 575</td>
<td>Concepts of Race</td>
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### Honours Thesis

6 credits of honours thesis courses selected from:

<table>
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<th>Credits</th>
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<td>Honours Thesis 2</td>
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<tr>
<td>ANTH 492</td>
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</table>
3.11.5.9 Bachelor of Arts (B.A.) - Joint Honours Component Anthropology (36 credits)

Students wishing to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Students interested in Joint Honours should consult an adviser in the other department for specific course requirements. A form will be supplied by the Anthropology Department to keep track of courses required by both departments for the Joint Honours components.

The Joint Honours thesis topic should be arranged by consultation with an adviser in Anthropology and the other discipline, and supervisors should be appointed in each department who will work together to guide the student.

Joint Honours students must maintain a GPA of 3.30 in their program courses and, according to Faculty regulations, a minimum CGPA of 3.00 in general.

**Complementary (36 credits)**

Joint Honours students select their courses as specified below.

### 200 Level

A maximum of 12 credits of 200-level courses selected from:

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<td>ANTH 204</td>
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<td>Anthropology of Religion</td>
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<td>Anthropology of Development</td>
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<td>ANTH 222</td>
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<td>ANTH 227</td>
<td>Medical Anthropology</td>
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### 300 Level

A minimum of 6 credits of 300-level courses selected from:

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<td>ANTH 303</td>
<td>Ethnographies of Post-socialism</td>
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<td>ANTH 305</td>
<td>Arctic Prehistory</td>
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<td>ANTH 313</td>
<td>Early Civilizations</td>
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</table>
ANTH 314  (3)  Psychological Anthropology 01
ANTH 315  (3)  Society/Culture: East Africa
ANTH 316  (3)  Anthropology of Complex Societies
ANTH 317  (3)  Prehistory of North America
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ANTH 341  (3)  Women in Cross-cultural Perspective
ANTH 342  (3)  Gender, Inequality and the State
ANTH 344  (3)  Quantitative Approaches to Anthropology
ANTH 345  (3)  Prehistory of Africa
ANTH 346  (3)  Development in Agrarian Societies
ANTH 347  (3)  Paleolithic Cultures
ANTH 348  (3)  Early Prehistory: New World
ANTH 380  (3)  Special Topic 1
ANTH 381  (3)  Special Topic 2
ANTH 382  (3)  Special Topic 3
ANTH 383  (3)  Special Topic 4

**Core (350 Level)**

A minimum of 9 credits of core courses at the 350 level selected from:

ANTH 352  (3)  History of Anthropological Theory
ANTH 355  (3)  Theories of Culture and Society
ANTH 357  (3)  Archaeological Methods
ANTH 358  (3)  The Process of Anthropological Research
ANTH 359  (3)  History of Archaeological Theory

**400/500 Level**

A minimum of 6 credits of 400- or 500-level courses selected from:
<table>
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<th>Course Title</th>
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<td>ANTH 575</td>
<td>(3)</td>
<td>Concepts of Race</td>
</tr>
</tbody>
</table>

**Joint Honours Project**

The Joint Honours thesis or project topic should be determined in consultation with advisers from both the student’s Joint Honours components. Normally, the project is 6 credits of coursework with 3 credits applying to each Joint Honours component. The 3-credit Anthropology course is selected from:

<table>
<thead>
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<td>ANTH 484</td>
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<td>Special Topic 9</td>
</tr>
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</table>
3.11.5.10 Anthropology (ANTH) Related Programs and Study Semesters

3.11.5.10.1 African Field Study Semester

The Department of Geography, Faculty of Science, coordinates the 15-credit interdisciplinary African Field Study Semester; see Field Studies and Study Abroad > African Field Study Semester.

3.11.6 Art History and Communication Studies (ARTH and COMS)

3.11.6.1 Location

Arts Building, W-225 (West Wing, top floor)
853 Sherbrooke Street West
Montreal, Quebec H3A 2T6

Telephone: 514-398-1828
Fax: 514-398-7247
Website: www.mcgill.ca/ahcs

3.11.6.2 About Art History and Communication Studies

In the field of Art History, the Department offers comprehensive programs of courses and seminars on the history of the visual arts, material culture, and architecture from antiquity to the present, focusing primarily on Europe and North America. The works of art and architecture are discussed within their cultural, political, historical, religious, philosophical, and social context.

Major and Minor concentrations, and Honours, Joint Honours and graduate programs are available in Art History. For the most up-to-date information on Department requirements and detailed course descriptions, please visit our Department's website or consult an appropriate undergraduate adviser through the Departmental Office, Arts Building, Room W-225, 514-398-1828.

The Department offers a minor concentration in the field of Communication Studies, as well as an M.A. and Ph.D. program at the graduate level as described in the Graduate and Postdoctoral Studies Programs, Courses and University Regulations publication available at www.mcgill.ca/study.

3.11.6.3 Orientation Session for New Students

All new students entering the Art History and Communication Studies undergraduate programs are required to attend an information session prior to registration. In 2011, Orientation will be held on August 24, from 1:00 - 3:00 p.m. in Arts W-215.

At the meeting, the Academic Adviser will explain the requirements of the Department's programs. Incoming students will have an opportunity to ask questions and receive advice on how to plan their courses. Afterwards, students will meet individually with an adviser in order to fill out their Minerva Course Selection Form for registration. Students should sign up for advising appointments after the orientation session.

3.11.6.4 Art History and Communication Studies (ARTH and COMS) Faculty

Chair
Will Straw

Director of Graduate Programs in Communication Studies
Darin Barney

Director of Graduate Programs in Art History
Amelia Jones

Director of Undergraduate Programs in Art History
Cecily Hilsdale

Director of Undergraduate Programs in Communication Studies
Becky Lentz
Emeritus Professors
George Szanto; B.A.(Dart.), Ph.D.(Harv.)

Professors
Amelia Jones; B.A.(Harv.), M.A.(Penn.), Ph.D.(Calif.)
Marc Raboy; B.Sc., M.A., Ph.D.(McG.)
Christine Ross; M.A.(C’dia), Ph.D.(Paris I)
Will Straw; B.A.(Car.), M.A., Ph.D.(McG.)

Associate Professors
Darin Barney; B.A., M.A.(S. Fraser), Ph.D.(Tor.)
Jennifer Burman; B.A.(C’dia), M.A., Ph.D.(York)
Charmaine Nelson; B.F.A., M.A.(C’dia), Ph.D.(Manc.)
Carrie Rentschler; B.A.(Minn.), M.A., Ph.D.(Ill.-Urbana-Champaign)
Jonathan Sterne; B.A.(Minn.), M.A., Ph.D.(Ill.-Urbana-Champaign)
Angela Vanhaelen; B.A.(W. Ont.), M.A., Ph.D.(Br. Col.)

Assistant Professors
Cecily Hilsdale; B.F.A.(C’dia), M.A., Ph.D.(Chic.)
Mary Hunter; B.A.(Qu.), M.A., Ph.D.(Lond.)
Becky Lentz; B.A.(Arkansas), M.A.(Southern Ill.), M.A.(NYU Tisch School)

Adjunct Professors
Cornelius Borck; M.A., M.D.(Free Univ., Berlin), Ph.D.(Lond.)
Johanne Lamoureux; B.A., M.A.(Montr.), Ph.D.(E.H.E.S.S., Paris)
Charles Levin; B.A., M.A.(McG.), Ph.D.(C’dia)
Bronwen Wilson; B.A., M.A.(Br. Col.), Ph.D.(N’western)

3.11.6.5 Bachelor of Arts (B.A.) - Minor Concentration Art History (18 credits)
This program may be expanded to the Major Concentration Art History.

Required Course (3 credits)
 ARTH 305 (3) Methods in Art History

Complementary Courses (15 credits)
Students select their complementary courses as follows:
3 credits in Art History at the 200 level.
12 credits in Art History at the 300 level or above, selected in consultation with the Departmental Adviser.
Note: Courses in studio practice cannot be counted towards the Minor concentration.

3.11.6.6 Bachelor of Arts (B.A.) – Major Concentration Art History (36 credits)
Revision, August 2011. Start of revision.

Required Course (3 credits)
 ARTH 305 (3) Methods in Art History
Complementary Courses (33 credits)

Students select their complementary courses as follows:
A maximum of 12 credits may be at the 200 level.
A minimum of 3 credits must be at the 400 level or above (excluding ARTH 490 Museum Internship).
The complementary courses must be selected from at least six of the eight Art History course fields.

Note: Courses in studio practice cannot be counted toward the Major concentration.

I. Theories and Methods

<table>
<thead>
<tr>
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<td>ARTH 352</td>
<td>Feminism in Art and Art History</td>
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II. Ancient to Medieval

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<td>Introduction to East Asian Art</td>
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III. 1400 - 1700 (Early Modern)

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<td>Introduction Early Modern Art 1600-1700</td>
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<td>Sixteenth-Century Art in Italy</td>
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<td>Renaissance Art and Architecture</td>
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<td>Baroque Art and Architecture</td>
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<td>ARTH 358</td>
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<td>ARTH 367</td>
<td>Italian Renaissance Art 2</td>
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<td>ARTH 435</td>
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<td>ARTH 473</td>
<td>Studies in 17th and Early 18th Century Art 04</td>
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IV. 1700 - 1945

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<tr>
<td>ARTH 226</td>
<td>Introduction to Eighteenth-Century Art and Architecture</td>
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<td>ARTH 323</td>
<td>Realism and Impressionism</td>
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<td>ARTH 334</td>
<td>Eighteenth Century European Art</td>
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<td>ARTH 335</td>
<td>Art in the Age of Revolution</td>
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</tr>
<tr>
<td>ARTH 337</td>
<td>Modern Art and Theory to WWI</td>
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</tr>
<tr>
<td>ARTH 338</td>
<td>Modern Art and Theory: WWI - WWII</td>
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</table>
19th Century Architecture (3) ARTH 347
20th Century Architecture (3) ARTH 348
Studies in Later 18th and 19th Century Art 01 (3) ARTH 374
Studies: Modern Art and Theoretical Problems 02 (3) ARTH 379
Studies in Later 18th and 19th Century Art 03 (3) ARTH 474
Studies: Modern Art and Theoretical Problems 04 (3) ARTH 479

V. Contemporary Art (1945 to Present)

Introduction to Contemporary Art (3) ARTH 202
Art Now (3) ARTH 336
Critical Issues - Contemporary Art (3) ARTH 339
Modern & Contemporary Chinese Art (3) ARTH 356
The Body and Visual Culture (3) ARTH 440

VI. Sites of Visual Culture

Canadian Art to 1914 (3) ARTH 300
Canadian Art 1914 - Present (3) ARTH 301
Aspects of Canadian Art (3) ARTH 302
Visual Culture of the Dutch Republic (3) ARTH 321
Visual Culture Renaissance Venice (3) ARTH 325

VII. Medium and Media

Studies in Manuscript and Print Culture (3) ARTH 326
Studies in the Photographic (3) ARTH 360
Brushwork in Chinese Painting (3) ARTH 457

VIII. Selected Topics

Selected Topics in Art History 1 (3) ARTH 353
Selected Topics Art History 2 (3) ARTH 354
Selected Topics in Art and Architecture 1 (3) ARTH 420
Selected Topics in Art and Architecture 2 (3) ARTH 421
Selected Topics in Art and Architecture 3 (3) ARTH 422
Independent Research Course (3) ARTH 447
Studies in Architectural History 1 (3) ARTH 460
Studies in Architectural History 2 (3) ARTH 461
Museum Internship (3) ARTH 490

Note: In addition to architectural courses given by the Department, program students are encouraged to consider courses given in the School of Architecture and the departments of East Asian Studies and Philosophy which may, upon consultation with the Department, be regarded as fulfilling part of the requirements.
Bachelor of Arts (B.A.) - Honours Art History (60 credits)

Revision, August 2011. Start of revision.

Students are encouraged to apply for this program after their first year of study at the University and after completion of no less than 12 credits in Art History. Admission is on a competitive basis. While the Faculty of Arts regulations require a minimum CGPA of 3.0 for Honours programs, the Department requires in addition a program GPA of 3.30 for admission into the program and the awarding of Honours.

In addition to the completion of the Honours requirements, students must complete at least a minor concentration in an academic unit other than the one in which the Honours requirements are satisfied. (For students completing a second degree in the Faculty of Arts, this regulation is waived.)

Required Courses (9 credits)

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<tr>
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<td>ARTH 400</td>
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<td>ARTH 401</td>
<td>3</td>
<td>Honours Research Paper</td>
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Complementary Courses (51 credits)

Students select their complementary courses as follows:

- A maximum of 15 credits may be at the 200 level.
- A minimum of 6 credits must be at the 400 level or above.
- 45 credits should be selected from at least six of the eight Art History course fields.
- 6 credits should be taken in a language other than English or in courses in one or two related disciplines selected with the written approval of the academic adviser.

I. Theories and Methods

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II. Ancient to Medieval

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III. 1400 - 1700 (Early Modern)

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<tr>
<td>ARTH 324</td>
<td>3</td>
<td>Sixteenth-Century Art in Italy</td>
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ARTh 332 (3) Renaissance Art and Architecture
ARTh 333 (3) Baroque Art and Architecture
ARTh 358 (3) Later Chinese Art (960-1911)
ARTh 367 (3) Italian Renaissance Art 2
ARTh 435 (3) Early Modern Visual Culture
ARTh 473 (3) Studies in 17th and Early 18th Century Art 04

IV. 1700 - 1945
ARTh 205 (3) Introduction to Modern Art
ARTh 226 (3) Introduction to Eighteenth-Century Art and Architecture
ARTh 323 (3) Realism and Impressionism
ARTh 334 (3) Eighteenth Century European Art
ARTh 335 (3) Art in the Age of Revolution
ARTh 337 (3) Modern Art and Theory to WWI
ARTh 338 (3) Modern Art and Theory: WWI - WWII
ARTh 347 (3) 19th Century Architecture
ARTh 348 (3) 20th Century Architecture
ARTh 374 (3) Studies in Later 18th and 19th Century Art 01
ARTh 379 (3) Studies: Modern Art and Theoretical Problems 02
ARTh 474 (3) Studies in Later 18th and 19th Century Art 03
ARTh 479 (3) Studies: Modern Art and Theoretical Problems 04

V. Contemporary Art (1945 to Present)
ARTh 202 (3) Introduction to Contemporary Art
ARTh 336 (3) Art Now
ARTh 339 (3) Critical Issues - Contemporary Art
ARTh 356 (3) Modern & Contemporary Chinese Art
ARTh 440 (3) The Body and Visual Culture

VI. Sites of Visual Culture
ARTh 300 (3) Canadian Art to 1914
ARTh 301 (3) Canadian Art 1914 - Present
ARTh 302 (3) Aspects of Canadian Art
ARTh 321 (3) Visual Culture of the Dutch Republic
ARTh 325 (3) Visual Culture Renaissance Venice

VII. Medium and Media
ARTh 326 (3) Studies in Manuscript and Print Culture
ARTh 360 (3) Studies in the Photographic
ARTh 457 (3) Brushwork in Chinese Painting

VIII. Selected Topics
ARTh 353 (3) Selected Topics in Art History 1
ARTh 354 (3) Selected Topics in Art History 2
ARTh 420 (3) Selected Topics in Art and Architecture 1
ARTh 421 (3) Selected Topics in Art and Architecture 2
ARTh 422 (3) Selected Topics in Art and Architecture 3
ARTh 447 (3) Independent Research Course
ARTh 460 (3) Studies in Architectural History 1
ARTh 461 (3) Studies in Architectural History 2
ARTh 490 (3) Museum Internship

Note: In addition to architectural courses given by the Department, program students are encouraged to consider courses given in the School of Architecture and the departments of East Asian Studies and Philosophy which may, upon consultation with the Department, be regarded as fulfilling part of the requirements.

ARCH 250 (3) Architectural History 1
ARCH 251 (3) Architectural History 2
EAST 303 (3) Current Topics: Chinese Studies 1
PHIL 336 (3) Aesthetics
PHIL 436 (3) Aesthetics 2

Revision, August 2011. End of revision.

3.11.6.8 Bachelor of Arts (B.A.) - Joint Honours Component Art History (36 credits)

Revision, August 2011. Start of revision.

Students wishing to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Prior to registering for each Joint Honours component, students should consult an adviser in each department for approval of their course selection.

Students are encouraged to apply for admission to the Joint Honours program after their first year of study at the University and after completion of no less than 12 credits in Art History. Admission is on a competitive basis. While the Faculty of Arts regulations require a minimum CGPA of 3.0 for Honours programs, the Department requires in addition a program GPA of 3.30 for admission into the program and the awarding of Honours.

Required Courses (9 credits)

ARTh 305 (3) Methods in Art History
ARTh 400 (3) Selected Methods in Art History
ARTh 401 (3) Honours Research Paper

Complementary Courses (27 credits)

Students select their complementary courses as follows:
A maximum of 9 credits may be at the 200 level.
A minimum of 3 credits must be at the 400 level or above.
27 credits should be selected from at least six of the eight Art History course fields.

I. Theories and Methods

ARTh 310 (3) Postcolonialism
ARTh 351 (3) Vision and Visuality in Art History
ARTh 352 (3) Feminism in Art and Art History

II. Ancient to Medieval
<table>
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### III. 1400 - 1700 (Early Modern)

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### IV. 1700 - 1945

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### V. Contemporary Art (1945 to Present)

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<td>Modern &amp; Contemporary Chinese Art</td>
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VI. Sites of Visual Culture

ARTH 300  (3)  Canadian Art to 1914
ARTH 301  (3)  Canadian Art 1914 - Present
ARTH 302  (3)  Aspects of Canadian Art
ARTH 321  (3)  Visual Culture of the Dutch Republic
ARTH 325  (3)  Visual Culture Renaissance Venice

VII. Medium and Media

ARTH 326  (3)  Studies in Manuscript and Print Culture
ARTH 360  (3)  Studies in the Photographic
ARTH 457  (3)  Brushwork in Chinese Painting

VIII. Selected Topics

ARTH 353  (3)  Selected Topics in Art History 1
ARTH 354  (3)  Selected Topics Art History 2
ARTH 420  (3)  Selected Topics in Art and Architecture 1
ARTH 421  (3)  Selected Topics in Art and Architecture 2
ARTH 422  (3)  Selected Topics in Art and Architecture 3
ARTH 447  (3)  Independent Research Course
ARTH 460  (3)  Studies in Architectural History 1
ARTH 461  (3)  Studies in Architectural History 2
ARTH 490  (3)  Museum Internship

Note: In addition to architectural courses given by the Department, program students are encouraged to consider courses given in the School of Architecture and the Departments of East Asian Studies and Philosophy which may, upon consultation with the Department, be regarded as fulfilling part of the requirements.

ARCH 250  (3)  Architectural History 1
ARCH 251  (3)  Architectural History 2
EAST 303  (3)  Current Topics: Chinese Studies 1
PHIL 336  (3)  Aesthetics
PHIL 436  (3)  Aesthetics 2

Revision, August 2011. End of revision.

3.11.6.9 Bachelor of Arts (B.A.) - Minor Concentration Communication Studies (18 credits)

The Minor Concentration Communication Studies provides undergraduate students with a critical understanding of the role that communications media and communication technologies play in a society. It offers students intellectually challenging and innovative instruction in key traditions of Communications and Media Studies and new theoretical and methodological practices being developed in the field. The courses included in the program focus on issues of the relationship between communication, democracy and urban life, the social life of communication technologies, the historical development and transformation of media and communication forms, institutions, practices and technologies, and the mass media representation and mobilization of social difference.

Required Course (3 credits)

COMS 210  (3)  Introduction to Communication Studies

Complementary Courses (15 credits)

Five courses in Communication Studies selected from:
### 3.11.7 Canadian Ethnic and Racial Studies Minor Concentration

#### 3.11.7.1 Location

Department of Sociology  
Stephen Leacock Building, Room 714  
855 Sherbrooke Street West  
Montreal, Quebec H3A 2T7

Telephone: 514-398-6853  
Email: morton.weinfeld@mcgill.ca

#### 3.11.7.2 About Canadian Ethnic and Racial Studies Minor Concentration

The Minor Concentration in Canadian Ethnic and Racial Studies is an interdisciplinary program administered by the Faculty of Arts. It is affiliated with the McGill Institute for the Study of Canada. The concentration can be taken in conjunction with any primary program in Arts or Science. It offers to undergraduate students a structured framework in which to appreciate the range of social scientific approaches to the study of ethnic diversity in Canada.

The terms “ethnic” and “racial” are used in a very broad sense, to include the full spectrum of ethnic, cultural, religious, aboriginal, linguistic, and racial groups in Canada.

The disciplines featured in the program are Sociology, Anthropology, Geography, History, and Political Science. **In special cases, courses taken from other Arts departments, and other units at McGill, may be considered (e.g., Social Work, Education), with the consent of the Chair. The same is true of new relevant courses not yet listed in the program requirements.**

Apart from the intrinsic interest and importance of the subject, the concentration may be of practical use. Students pursuing further graduate and professional training or employment in a variety of areas will find familiarity with issues relating to cultural diversity to be an asset. These include the fields of health, social services, education, law, law enforcement, human resources and personnel; occupations in government agencies, in ethnocultural and other non-governmental organizations; and graduate work in all the social sciences.

The Canadian Ethnic and Racial Studies concentration will also sponsor programs of interest for the McGill community during the course of the year. Students interested in registering in this program should contact the Chair.
3.11.7.3 Canadian Ethnic and Racial Studies Minor Concentration Faculty

**Chair**
Morton Weinfeld (Sociology)

**Advisory Committee**
G. Burgos (Sociology)
Ian H. Henderson (Religious Studies)
A. Hsia (German Studies)
S. T. Saideman (Political Science)
J. Torczyner (Social Work)

3.11.7.4 Bachelor of Arts (B.A.) - Minor Concentration Canadian Ethnic and Racial Studies (18 credits)

**Required Courses (9 credits)**

<table>
<thead>
<tr>
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<th>Credits</th>
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<tr>
<td>SOCI 210</td>
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<td>Sociological Perspectives</td>
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<tr>
<td>SOCI 230</td>
<td>3</td>
<td>Sociology of Ethnic Relations</td>
</tr>
<tr>
<td>SOCI 475</td>
<td>3</td>
<td>Canadian Ethnic Studies Seminar</td>
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</table>

Note: Of the 18 credits, selected with due regard to Faculty guidelines and course prerequisites, at least 9 must be above the 200 level.

**Complementary Courses (9 credits)**

9 credits, at least 6 of which must be at the 300 level or higher, selected from two of the following departmental lists:

**Anthropology**

<table>
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<tr>
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<td>ANTH 306</td>
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<td>Native Peoples' History in Canada</td>
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<td>ANTH 320</td>
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<td>Social Evolution</td>
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<td>ANTH 333</td>
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<td>Class and Ethnicity</td>
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<td>ANTH 338</td>
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<td>Native Peoples of North America</td>
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<tr>
<td>ANTH 436</td>
<td>3</td>
<td>North American Native Peoples</td>
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<tr>
<td>ANTH 500</td>
<td>3</td>
<td>Chinese Diversity and Diaspora</td>
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<td>Concepts of Race</td>
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**Geography**

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<td>GEOG 424</td>
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<td>Europe: Places and Peoples</td>
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<td>GEOG 502</td>
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<td>Geography of Northern Development</td>
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**History**

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<td>HIST 300</td>
<td>3</td>
<td>Nationalisms in Canada</td>
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<tr>
<td>HIST 303</td>
<td>3</td>
<td>History of Quebec</td>
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</table>
HIST 353 (3) History of Montreal
HIST 357 (3) Religion and Canadian Society in Historical Perspective
HIST 371 (3) American Civil Rights 1877-1940
HIST 397 (3) Canada: Ethnicity, Migration
HIST 408 (3) Colonialism and Native Peoples
HIST 423 (3) Topics: Migration and Ethnicity
HIST 442 (3) Asian Diaspora: Chinese Overseas
HIST 471D1 (3) Canadian Immigration History
HIST 471D2 (3) Canadian Immigration History

Political Science
POLI 226 (3) La vie politique québécoise
POLI 321 (3) Issues: Canadian Public Policy
POLI 336 (3) Le Québec et le Canada
POLI 372 (3) Aboriginal Politics in Canada
POLI 411 (3) Immigration and Multiculturalism in Canada
POLI 423 (3) Politics of Ethno-Nationalism
POLI 431 (3) Nations and States/Developed World
POLI 435 (3) Identity and Inequality
POLI 478 (3) The Canadian Constitution

Sociology
SOCI 234 (3) Population and Society
SOCI 327 (3) Jews in North America
SOCI 333 (3) Social Stratification
SOCI 353 (3) Inequality and Social Conflict
SOCI 512 (3) Ethnicity & Public Policy
SOCI 520 (3) Migration and Immigrant Groups

Social Work
SWRK 400 (3) Policy and Practice for Refugees

3.11.8 Canadian Studies (CANS)

3.11.8.1 Location
McGill Institute for the Study of Canada
3463 Peel Street
Montreal, Quebec H3A 1W7

Telephone: 514-398-8346
Fax: 514-398-7336
Website: www.mcgill.ca/misc
3.11.8.2 About Canadian Studies

Canadian Studies provides students with a broad multidisciplinary view of the nature and development of Canada. Our programs -- including Minor concentration, Major concentration, Honours, and Joint Honours -- are designed to encourage bilingualism, interdisciplinarity, and critical engagement. Our graduates go on to careers in the arts, government, the media, education, law, business, social service, and the university.

Students interested in pursuing Canadian Studies at the graduate level should consider the Joint Honours or the Honours concentration with a Canadian Studies component.

3.11.8.3 Canadian Studies (CANS) Faculty

**Director**
Antonia Maioni (*Political Science*)

**Program Director**
Elsbeth Heaman (*History and Classical Studies*)

3.11.8.4 Bachelor of Arts (B.A.) – Minor Concentration Canadian Studies (18 credits)

Revision, August 2011. Start of revision.

The Minor program enables students to take courses about Canada outside the areas of their other major or minor concentrations.

This program may be expanded to the Major Concentration Canadian Studies.

**Required Course (3 credits)**
CANS 200 (3) Introduction to the Study of Canada

**Complementary Courses (15 credits)**
15 credits selected as specified below.

NOTE: Students may not choose more than 3 credits in disciplines of their other major or minor concentrations.

**200 Level**
6 credits selected from:

- **ANTH 222** (3) Legal Anthropology
- **ECON 219** (3) Current Economic Problems: Topics
- **ENGL 228** (3) Canadian Literature 1
- **ENGL 229** (3) Canadian Literature 2
- **FREN 252** (3) Littérature québécoise
- **HIST 202** (3) Survey: Canada to 1867
- **HIST 203** (3) Survey: Canada since 1867
- **POLI 221** (3) Government of Canada
- **POLI 222** (3) Political Process and Behaviour in Canada
- **SOCI 230** (3) Sociology of Ethnic Relations

**Canadian Studies (CANS)**
6 credits in interdisciplinary Canadian Studies courses with the subject code CANS.

**Canadian Studies (Other Departments)**
3 credits chosen from the complementary course list at the 300 level or higher. The courses chosen must have relevance to the program.

**Anthropology**
ANTH 222 (3) Legal Anthropology
ANTH 305 (3) Arctic Prehistory
ANTH 306 (3) Native Peoples' History in Canada
ANTH 317 (3) Prehistory of North America
ANTH 333 (3) Class and Ethnicity
ANTH 336 (3) Ethnohistory: North Eastern North America
ANTH 338 (3) Native Peoples of North America
ANTH 436 (3) North American Native Peoples

Art History
ARTH 300 (3) Canadian Art to 1914
ARTH 301 (3) Canadian Art 1914 - Present
ARTH 302 (3) Aspects of Canadian Art
ARTH 479 (3) Studies: Modern Art and Theoretical Problems 04

Biology
BIOL 240 (3) Monteregian Flora

Economics
ECON 219 (3) Current Economic Problems: Topics
ECON 223 (3) Political Economy of Trade Policy
ECON 303 (3) Canadian Economic Policy
ECON 305 (3) Industrial Organization
ECON 308 (3) Governmental Policy Towards Business
ECON 405 (3) Natural Resource Economics
ECON 406 (3) Topics in Economic Policy
ECON 408 (3) Public Sector Economics 1
ECON 409 (3) Public Sector Economics 2
ECON 434 (3) Current Economic Problems
ECON 440 (3) Health Economics
ECON 480 (3) Research Project 1
ECON 481 (3) Research Project 2

English
ENGL 228 (3) Canadian Literature 1
ENGL 229 (3) Canadian Literature 2
ENGL 327 (3) Canadian Prose Fiction 1
ENGL 328 (3) Development of Canadian Poetry 1
ENGL 333 (3) Development of Canadian Poetry 2
ENGL 339 (3) Canadian Prose Fiction 2
ENGL 341 (3) Canadian Radio and Television
ENGL 345 (3) Literature and Society
### Canadian Literature
- ENGL 393 (3): Canadian Cinema
- ENGL 409 (3): Studies in a Canadian Author
- ENGL 410 (3): Theme or Movement Canadian Literature
- ENGL 411 (3): Studies in Canadian Fiction
- ENGL 415 (3): Studies in 20th Century Literature 2
- ENGL 419 (3): Studies in 20th Century Literature
- ENGL 499 (3): Departmental Seminar
- ENGL 527 (3): Canadian Literature
- ENGL 528 (3): Canadian Literature

### French as a Second Language
- FRSL 101 (6): Beginners’ French
- FRSL 101D1 (3): Beginners’ French
- FRSL 101D2 (3): Beginners’ French
- FRSL 103 (3): Near Beginners’ French
- FRSL 105 (6): Intensive Beginners’ French
- FRSL 206 (3): Elementary French
- FRSL 207 (6): Elementary French 01
- FRSL 207D1 (3): Elementary French 01
- FRSL 207D2 (3): Elementary French 01
- FRSL 208 (6): Intensive Elementary French
- FRSL 211 (6): Oral and Written French 1
- FRSL 211D1 (3): Oral and Written French 1
- FRSL 211D2 (3): Oral and Written French 1
- FRSL 212 (3): Oral and Written French 1
- FRSL 215 (6): Oral and Written French 1 - Intensive
- FRSL 216 (3): Découvrons Montréal en français
- FRSL 302 (3): Listening Comprehension and Oral Expression 1
- FRSL 303 (3): Listening Comprehension and Oral Expression 2
- FRSL 321 (6): Oral and Written French 2
- FRSL 321D1 (3): Oral and Written French 2
- FRSL 321D2 (3): Oral and Written French 2
- FRSL 322 (3): Oral and Written French 2
- FRSL 325 (6): Oral and Written French 2 - Intensive
- FRSL 326 (3): Découvrons le Québec en français
- FRSL 332 (3): Intermediate French: Grammar 01
- FRSL 333 (3): Intermediate French: Grammar 02
- FRSL 407 (3): Compréhension et expression orales
- FRSL 408 (3): Français oral: Textes et expressions
- FRSL 431 (6): Français fonctionnel avancé
- FRSL 431D1 (3): Français fonctionnel avancé
- FRSL 431D2 (3): Français fonctionnel avancé
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<td>FRSL 449</td>
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<td>Le Français des médias</td>
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<td>FRSL 455</td>
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**French Language and Literature**

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<td>FREN 252</td>
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<td>Civilisation québécoise</td>
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<td>La langue française</td>
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<td>Littérature québécoise contemporaine</td>
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**Geography**

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<td>Subarctic Field Studies</td>
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<td>GEOG 502</td>
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**History**

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<td>Nationalisms in Canada</td>
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<td>HIST 303</td>
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<td>History of Quebec</td>
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<td>HIST 322</td>
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<td>Canada: American Presence since 1939</td>
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<td>HIST 333</td>
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<td>Natives and French</td>
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<td>HIST 334</td>
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<td>History of New France</td>
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<td>3</td>
<td>Science and Medicine in Canada</td>
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<td>Canada: External Relations since 1867</td>
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<td>History of Quebec Institutions</td>
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<td>HIST 414</td>
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<td>British and French Identity</td>
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**Linguistics**

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**Music**

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**Political Science**

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<td>POLI 222</td>
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<td>Political Process and Behaviour in Canada</td>
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<td>POLI 226</td>
<td>3</td>
<td>La vie politique québécoise</td>
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<td>POLI 320</td>
<td>3</td>
<td>Issues in Canadian Democracy</td>
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<td>POLI 321</td>
<td>3</td>
<td>Issues: Canadian Public Policy</td>
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<td>POLI 326</td>
<td>3</td>
<td>Provincial Politics</td>
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<td>POLI 336</td>
<td>3</td>
<td>Le Québec et le Canada</td>
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Bachelor of Arts (B.A.) – Major Concentration Canadian Studies (36 credits)

Revision, August 2011. Start of revision.

Required Courses (6 credits)

CANS 200 (3) Introduction to the Study of Canada
CANS 501 (3) Interdisciplinarity & Canadian Studies

Normally students will complete CANS 200 and at least 6 credits of core courses in their U1 year, will complete all core courses and at least 3 credits of CANS courses by the end of their U2 year, and will complete CANS 501 in their U3 year.

Complementary Courses (30 credits)

30 credits selected as specified below.

Note: Students may not choose more than 9 credits in disciplines of their other major or minor concentrations.

200 Level
12 credits selected from:

- ANTH 222 (3) Legal Anthropology
- ECON 219 (3) Current Economic Problems: Topics
- ENGL 228 (3) Canadian Literature 1
- ENGL 229 (3) Canadian Literature 2
- FREN 252 (3) Littérature québécoise
- HIST 202 (3) Survey: Canada to 1867
- HIST 203 (3) Survey: Canada since 1867
- POLI 221 (3) Government of Canada
- POLI 222 (3) Political Process and Behaviour in Canada
- SOCI 230 (3) Sociology of Ethnic Relations

**Canadian Studies (CANS)**

6-12 credits in interdisciplinary Canadian Studies courses with the subject code CANS.

**Canadian Studies (Other Departments)**

6-12 credits chosen from courses in Canadian Studies offered by other departments from the list below with at least 6 credits at the 300 level or higher. The courses chosen must all have relevance to the program.

3 credits must be taken in the French language (including language courses). A maximum of 3 credits may be chosen from French as a Second Language (FRSL).

**Anthropology**

- ANTH 222 (3) Legal Anthropology
- ANTH 305 (3) Arctic Prehistory
- ANTH 306 (3) Native Peoples' History in Canada
- ANTH 317 (3) Prehistory of North America
- ANTH 333 (3) Class and Ethnicity
- ANTH 336 (3) Ethnohistory: North Eastern North America
- ANTH 338 (3) Native Peoples of North America
- ANTH 436 (3) North American Native Peoples

**Art History**

- ARTH 300 (3) Canadian Art to 1914
- ARTH 301 (3) Canadian Art 1914 - Present
- ARTH 302 (3) Aspects of Canadian Art
- ARTH 479 (3) Studies: Modern Art and Theoretical Problems 04

**Biology**

- BIOL 240 (3) Monteregian Flora

**Economics**

- ECON 219 (3) Current Economic Problems: Topics
- ECON 223 (3) Political Economy of Trade Policy
- ECON 303 (3) Canadian Economic Policy
ECON 305  (3)  Industrial Organization  
ECON 308  (3)  Governmental Policy Towards Business  
ECON 405  (3)  Natural Resource Economics  
ECON 406  (3)  Topics in Economic Policy  
ECON 408  (3)  Public Sector Economics 1  
ECON 409  (3)  Public Sector Economics 2  
ECON 434  (3)  Current Economic Problems  
ECON 440  (3)  Health Economics  
ECON 480  (3)  Research Project 1  
ECON 481  (3)  Research Project 2  

**English**

ENGL 228  (3)  Canadian Literature 1  
ENGL 229  (3)  Canadian Literature 2  
ENGL 327  (3)  Canadian Prose Fiction 1  
ENGL 328  (3)  Development of Canadian Poetry 1  
ENGL 333  (3)  Development of Canadian Poetry 2  
ENGL 339  (3)  Canadian Prose Fiction 2  
ENGL 341  (3)  Canadian Radio and Television  
ENGL 345  (3)  Literature and Society  
ENGL 393  (3)  Canadian Cinema  
ENGL 409  (3)  Studies in a Canadian Author  
ENGL 410  (3)  Theme or Movement Canadian Literature  
ENGL 411  (3)  Studies in Canadian Fiction  
ENGL 415  (3)  Studies in 20th Century Literature 2  
ENGL 419  (3)  Studies in 20th Century Literature  
ENGL 499  (3)  Departmental Seminar  
ENGL 527  (3)  Canadian Literature  
ENGL 528  (3)  Canadian Literature  

**French as a Second Language**

FRSL 101  (6)  Beginners' French  
FRSL 101D1  (3)  Beginners' French  
FRSL 101D2  (3)  Beginners' French  
FRSL 103  (3)  Near Beginners' French  
FRSL 105  (6)  Intensive Beginners' French  
FRSL 206  (3)  Elementary French  
FRSL 207  (6)  Elementary French 01  
FRSL 207D1  (3)  Elementary French 01  
FRSL 207D2  (3)  Elementary French 01  
FRSL 208  (6)  Intensive Elementary French  
FRSL 211  (6)  Oral and Written French 1
FRSL 211D1 (3) Oral and Written French 1
FRSL 211D2 (3) Oral and Written French 1
FRSL 212 (3) Oral and Written French 1
FRSL 215 (6) Oral and Written French 1 - Intensive
FRSL 216 (3) Découvrons Montréal en français
FRSL 302 (3) Listening Comprehension and Oral Expression 1
FRSL 303 (3) Listening Comprehension and Oral Expression 2
FRSL 321 (6) Oral and Written French 2
FRSL 321D1 (3) Oral and Written French 2
FRSL 322 (3) Oral and Written French 2
FRSL 325 (6) Oral and Written French 2 - Intensive
FRSL 326 (3) Découvrons le Québec en français
FRSL 332 (3) Intermediate French: Grammar 01
FRSL 333 (3) Intermediate French: Grammar 02
FRSL 407 (3) Compréhension et expression orales
FRSL 408 (3) Français oral: Textes et expressions
FRSL 431 (6) Français fonctionnel avancé
FRSL 431D1 (3) Français fonctionnel avancé
FRSL 431D2 (3) Français fonctionnel avancé
FRSL 432 (3) Français fonctionnel
FRSL 445 (3) Français fonctionnel, écrit 1
FRSL 446 (3) Français fonctionnel, écrit 2
FRSL 449 (3) Le Français des médias
FRSL 455 (3) Grammaire et création

**French Language and Literature**

FREN 245 (3) Grammaire avancée
FREN 252 (3) Littérature québécoise
FREN 315 (3) Cinéma québécois
FREN 329 (3) Civilisation québécoise
FREN 336 (3) La langue française
FREN 372 (3) Littérature québécoise 1
FREN 382 (3) Littérature québécoise 2
FREN 480 (3) Littérature québécoise contemporaine

**Geography**

GEOG 217 (3) Cities in the Modern World
GEOG 272 (3) Earth's Changing Surface
GEOG 301 (3) Geography of Nunavut
GEOG 309 (3) Geography of Canada
GEOG 311 (3) Economic Geography
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**Québec, Études sur le**

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**Sociology**
SOCI 210 (3) Sociological Perspectives
SOCI 225 (3) Medicine and Health in Modern Society
SOCI 230 (3) Sociology of Ethnic Relations
SOCI 318 (3) Television in Society
SOCI 327 (3) Jews in North America
SOCI 475 (3) Canadian Ethnic Studies Seminar

Revision, August 2011. End of revision.

3.1.18.6 Bachelor of Arts (B.A.) – Honours Canadian Studies (57 credits)

Revision, August 2011. Start of revision.

Students planning to pursue an Honours program option are reminded that they must complete a minor concentration (18 credits) in another Arts discipline to graduate.

Students with a GPA of 3.30 in their program courses and, in keeping with Faculty regulations, a minimum CGPA of 3.00 in general, are eligible to apply to the Honours program. Application deadlines are December 15 and May 15. Forms are available from the McGill Institute for the Study of Canada (MISC) Office.

Required Courses (12 credits)

CANS 200 (3) Introduction to the Study of Canada
CANS 480 (3) Honours Thesis 1
CANS 481 (3) Honours Thesis 2
CANS 501 (3) Interdisciplinarity & Canadian Studies

Complementary Courses (45 credits)

45 credits selected as specified below.

Note: Students may not choose more than 9 credits in disciplines of their other major or minor concentrations.

200 Level

12 credits selected from:

ANTH 222 (3) Legal Anthropology
ECON 219 (3) Current Economic Problems: Topics
ENGL 228 (3) Canadian Literature 1
ENGL 229 (3) Canadian Literature 2
FREN 252 (3) Littérature québécoise
HIST 202 (3) Survey: Canada to 1867
HIST 203 (3) Survey: Canada since 1867
POLI 221 (3) Government of Canada
POLI 222 (3) Political Process and Behaviour in Canada
SOCI 230 (3) Sociology of Ethnic Relations

Canadian Studies (CANS)

12-15 credits in interdisciplinary Canadian Studies courses with the subject code CANS.

Canadian Studies (Other Departments)

18-21 credits chosen from courses in Canadian Studies offered by other departments from the list below with at least 6 credits at the 400 level or higher.

3 credits must be taken in the French language (including language courses). A maximum of 3 credits may be chosen from French as a Second Language (FRSL).
### Anthropology

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### Biology

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Provincial Politics (3) POLI 326
Le Québec et le Canada (3) POLI 336
Canadian Public Administration (3) POLI 337
Canadian Foreign Policy (3) POLI 342
Challenge of Canadian Federalism (3) POLI 371
Aboriginal Politics in Canada (3) POLI 372
The Canadian Judicial Process (3) POLI 378
Topics in Canadian Politics (3) POLI 379
Canadian Political Parties (3) POLI 410
Immigration and Multiculturalism in Canada (3) POLI 411
Canadian Voting/Public Opinion (3) POLI 412
Health Care in Canada (3) POLI 417
Selected Topics: Canadian Politics (3) POLI 427
Nations and States/Developed World (3) POLI 431
Les politiques publiques au Québec (3) POLI 446
Canadian Constitutional Politics (3) POLI 447
Politics of Regulation (3) POLI 469
The Canadian Constitution (3) POLI 478

Québec, Études sur le
QCST 300 (3) Quebec Culture and Society
QCST 440 (3) Contemporary Issues in Quebec

Sociology
SOCI 210 (3) Sociological Perspectives
SOCI 225 (3) Medicine and Health in Modern Society
SOCI 230 (3) Sociology of Ethnic Relations
SOCI 318 (3) Television in Society
SOCI 327 (3) Jews in North America
SOCI 475 (3) Canadian Ethnic Studies Seminar

Revision, August 2011. End of revision.

3.11.8.7 Bachelor of Arts (B.A.) – Joint Honours Component Canadian Studies (36 credits)
Revision, August 2011. Start of revision.

Students who wish to study at the Honours level in two disciplines can combine Joint Honours components from any two Arts disciplines.

Students with a minimum program GPA of 3.30 in their program courses and, in keeping with Faculty regulations, a minimum CGPA of 3.00 in general, are eligible to apply to the Joint Honours. Application deadlines are December 15 and May 15. Forms are available from the McGill Institute for the Study of Canada (MISC) Office.

Joint Honours students must maintain a GPA of 3.30 in their program courses and, according to Faculty regulations, a minimum CGPA of 3.00 in general.

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable).

Required Courses (9 credits)
CANS 200 (3) Introduction to the Study of Canada
CANS 492 (3) Joint Honours Thesis
Complementary Courses (27 credits)
27 credits selected as specified below.
Note: Students may not choose more than 9 credits in disciplines of their other major or minor concentrations.

200 Level
12 credits selected from:
- ANTH 222 (3) Legal Anthropology
- ECON 219 (3) Current Economic Problems: Topics
- ENGL 228 (3) Canadian Literature 1
- ENGL 229 (3) Canadian Literature 2
- FREN 252 (3) Littérature québécoise
- HIST 202 (3) Survey: Canada to 1867
- HIST 203 (3) Survey: Canada since 1867
- POLI 221 (3) Government of Canada
- POLI 222 (3) Political Process and Behaviour in Canada
- SOCI 230 (3) Sociology of Ethnic Relations

Canadian Studies (CANS)
6-9 credits in interdisciplinary Canadian Studies courses with the subject code CANS.

Canadian Studies (Other Departments)
6-9 credits chosen from courses in Canadian Studies offered by other departments from the list below with at least 6 credits at the 400 level or higher.
3 credits must be taken in the French language (including language courses). A maximum of 3 credits may be chosen from French as a Second Language (FRSL).

Anthropology
- ANTH 222 (3) Legal Anthropology
- ANTH 305 (3) Arctic Prehistory
- ANTH 306 (3) Native Peoples' History in Canada
- ANTH 317 (3) Prehistory of North America
- ANTH 333 (3) Class and Ethnicity
- ANTH 336 (3) Ethnohistory: North Eastern North America
- ANTH 338 (3) Native Peoples of North America
- ANTH 436 (3) North American Native Peoples

Art History
- ARTH 300 (3) Canadian Art to 1914
- ARTH 301 (3) Canadian Art 1914 - Present
- ARTH 302 (3) Aspects of Canadian Art
- ARTH 479 (3) Studies: Modern Art and Theoretical Problems 04

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**History**

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<td>Canada: Ethnicity, Migration</td>
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**Political Science**

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<td>Issues: Canadian Public Policy</td>
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<td>POLI 326</td>
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<td>Le Québec et le Canada</td>
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Québec, Études sur le
QCST 300 (3) Quebec Culture and Society
QCST 440 (3) Contemporary Issues in Quebec

Sociology
SOCl 210 (3) Sociological Perspectives
SOCl 225 (3) Medicine and Health in Modern Society
SOCl 230 (3) Sociology of Ethnic Relations
SOCl 318 (3) Television in Society
SOCl 327 (3) Jews in North America
SOCl 475 (3) Canadian Ethnic Studies Seminar

Revision, August 2011. End of revision.

3.11.9 Catholic Studies (CATH)

3.11.9.1 Location
Interdisciplinary Programs Office
Dawson Hall, Room 112B
853 Sherbrooke Street West
Montreal, Quebec H3A 2T6
Telephone: 514-398-4400 ext. 09557
Fax: 514-398-7185
Email: interdisciplinary.arts@mcgill.ca
Website: www.mcgill.ca/catholicstudies
Advisor: Karin Bourgeois

3.11.9.2 About Catholic Studies Program
The Catholic Studies program was established in 2001. The program aims to offer a systematic and comprehensive exploration of a major religious tradition, with a special focus on its interaction with society and culture.

3.11.9.3 Catholic Studies (CATH) Faculty

Program Committee Chair
Daniel Cere (Faculty of Religious Studies)

Program Committee
D. Farrow (Faculty of Religious Studies)
T. Kirby (Faculty of Religious Studies)
P. Kirkpatrick (Faculty of Religious Studies)
C. Potworowski (Philosophy)
F. Sabetti (Political Science)
J. Zucchi (History and Classical Studies)

3.11.9.4 Bachelor of Arts (B.A.) - Minor Concentration Catholic Studies (18 credits)
The Minor Concentration in Catholic Studies seeks to enrich the intellectual experience and academic options available to students, to broaden the course offerings across the disciplines, and to complement the visibility given to other programs such as Jewish Studies, Islamic Studies, and North American
Studies. Core and complementary courses provide students an opportunity to deepen their understanding of Catholicism in an increasingly pluralistic world. The program offers a systematic and critical exploration of the diverse ways in which the Catholic tradition informs culture, institutions, and identity.

**Required Course (3 credits)**

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<td>CATH 200</td>
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**Complementary Courses (15 credits)**

15 credits selected with the following specifications:

- 9 credits from Catholic Studies courses with the subject code CATH
- 3 credits from Group I: Catholicism and the Arts course lists
- 3 credits from Group II: Catholic Social and Intellectual Traditions course lists

**Catholic Studies (CATH)**

9 credits chosen from the list of Catholic Studies courses below.

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<td>Catholic Intellectual Traditions</td>
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<td>CATH 315</td>
<td>3</td>
<td>Catholicism and Moral Culture</td>
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<td>CATH 320</td>
<td>3</td>
<td>Scripture and Catholicism</td>
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<td>CATH 325</td>
<td>3</td>
<td>The Religious Sense</td>
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<td>CATH 340</td>
<td>3</td>
<td>Catholic Social Thought</td>
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<td>CATH 370</td>
<td>3</td>
<td>Topics in Catholic Studies</td>
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<td>CATH 460</td>
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<td>Catholic Studies Seminar</td>
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**Group I: Catholicism and the Arts**

3 credits in Catholicism and the Arts selected from the lists below.

**Art History and Communication Studies**

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**Education**

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<tr>
<td>EDER 204</td>
<td>3</td>
<td>Man Before Reality</td>
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<td>EDER 207</td>
<td>3</td>
<td>’Who is Christ?’</td>
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<td>EDER 209</td>
<td>3</td>
<td>Search for Authenticity</td>
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<td>EDER 394</td>
<td>3</td>
<td>Philosophy of God</td>
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<td>Chaucer - Canterbury Tales</td>
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<td>Littérature québécoise</td>
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Francophonie 2
Civilisation québécoise
La littérature médiévale 1

Hispanic Studies
Literature - Discovery and Exploration Spain New World

Italian Studies
Manzoni: Novel and Nationhood
Dante and the Middle Ages
Modern Italian Literature

Music
Church Music

Religious Studies
Bible and Western Culture
Jesus of Nazareth
New Testament Studies 1
New Testament Studies 2
Introduction: Philosophy of Religion
Religious Controversies

Group II: Catholic Social and Intellectual Traditions
3 credits in Catholic Social and Intellectual Traditions selected from the lists below.

East Asian Studies
Society and Community in Korea

Education
Philosophy of Human Nature
Philosophy of God
Moral Values and Human Action
Ethics in Practice

History
The Scientific Revolution
European Thought and Culture 1
European Thought and Culture 2
History of Ireland
Renaissance-Reformation Europe
France, 1789 to 1914
### Philosophy

- **PHIL 334** (3) Ethical Theory
- **PHIL 356** (3) Early Medieval Philosophy
- **PHIL 357** (3) Late Medieval and Renaissance Philosophy
- **PHIL 474** (3) Phenomenology

### Political Science

- **POLI 226** (3) La vie politique québécoise
- **POLI 318** (3) Comparative Local Government
- **POLI 319** (3) Politics of Latin America
- **POLI 321** (3) Issues: Canadian Public Policy
- **POLI 414** (3) Society and Politics in Italy

### Religious Studies

- **RELG 322** (3) The Church in History 1
- **RELG 323** (3) The Church in History 2
- **RELG 340** (3) Religion and the Sciences
- **RELG 532** (3) History of Christian Thought 1
- **RELG 533** (3) History of Christian Thought 2

### Sociology

- **SOCI 315** (3) Sociology of Religion

### 3.11.10 History and Classical Studies – Classics Program (CLAS)

#### 3.11.10.1 Location

General Office, Room 608  
Stephen Leacock Building, 6th Floor  
855 Sherbrooke Street West  
Montreal, Quebec H3A 2T7  

Telephone: 514-398-3975  
Fax: 514-398-8365  
Email: undergrad.history@mcgill.ca  
Website: www.mcgill.ca/classics
About Classics Program

Classical Studies offers an in-depth study of the languages, literature, history, and culture of ancient Greece and Rome. Students may complete one of the four standard undergraduate programs (Minor, Major, Honours, Joint Honours concentration). The Minor and Major concentrations provide a useful complement for students in the arts and sciences. Two separate streams allow students to put emphasis either on the ancient languages or on the culture of the ancient Mediterranean. The Joint Honours and Honours degrees are designed to train students who wish to make Classics a basis for academic careers. They also offer students the prospect of favourable consideration for graduate and other professional schools.

All Classics degree options require students to choose courses from one or more of the following thematic areas:

- Classical Languages
- Classical Literature
- Ancient History
- Philosophy and Religion
- Modern Greek

The current list of courses within each thematic area is available on the Classical Studies website: [www.mcgill.ca/classics/teaching/thematic-areas](http://www.mcgill.ca/classics/teaching/thematic-areas).

History and Classical Studies – Classics Program (CLAS) Faculty

**Emeritus Professors**

- Albert Schachter; B.A.(McG.), D.Phil.(Oxf.) *(Hiram Mills Emeritus Professor of Classics)*
- George Michael Woloch; B.A.(Yale), M.A.(Oxf.), Ph.D.(Johns Hop.) *(John McNaughton Emeritus Professor of Classics)*

**Professor**

- Hans Beck, Director of Classical Studies; Ph.D.(Erlangen) *(John MacNaughton Professor of Classics)*

**Associate Professor**

- Michael Fronda; B.A.(C'nell), M.A., Ph.D.(Ohio St.)

**Assistant Professors**

- Charles W. Gladhill; B.A.(Mich.), M.A.(Georgia South.), Ph.D.(Stan.)
- Lynn Kozak; B.A.(Barnard), M.A.(Lond.), Ph.D.(Nott.)

**Faculty Lecturers**

- Donald W. Baronowski; B.A.(McG.), M.A.(Br. Col.), Ph.D.(Tor.)
- Margaret Palczynski; B.Sc.(McG.), M.A.(C'dia)

Bachelor of Arts (B.A.) - Minor Concentration Classics (18 credits)

Two separate streams allow students to put emphasis either on the ancient languages or on the culture of the ancient Mediterranean. This program may be expanded to the Major Concentration Classics.

**Complementary Courses (18 credits)**

Students select one of the following two streams of study:

- Classical Language Stream
- Classical Studies Stream

Classical Language Stream

- 18 credits taken from the five thematic areas of Classics: Classical Languages, Classical Literature, Ancient History, Philosophy and Religion, Modern Greek with the specifications described below. For course choices, see the course lists provided for each area.
- 12 credits minimum in Classical Languages
- a minimum of 3 credits at the 300 level or higher of CLAS courses;
- a maximum of 12 credits of 200-level courses.

Classical Studies Stream

- 18 credits taken from the five thematic areas of Classics: Classical Languages, Classical Literature, Ancient History, Philosophy and Religion, Modern Greek with the specifications described below. For course choices, see the course lists provided for each area.
- 12 credits minimum in Classical Languages
- a minimum of 3 credits at the 300 level or higher of CLAS courses;
- a maximum of 12 credits of 200-level courses.
18 credits taken from the five thematic areas of Classics: Classical Languages, Classical Literature, Ancient History, Philosophy and Religion, Modern Greek with the specifications described below. For course choices, see the course lists provided for each area.

6 credits minimum in Classical Languages
a minimum of 6 credits in one of the following areas:
- Classical Literature
- Ancient History
- Philosophy and Religion
- Modern Greek

a minimum of 3 credits of 300-level or higher CLAS courses
a maximum of 12 credits of 200-level courses.

Note: The same course may not count toward more than one thematic area requirement.

**Classical Languages - Latin**

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<td>CLAS 311</td>
<td>(3)</td>
<td>Catullus/Ovid</td>
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**Classical Languages - Ancient Greek**

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<td>CLAS 320</td>
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<tr>
<td>CLAS 321</td>
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<td>Intermediate Greek: Plato/Xenophon</td>
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**Classical Literature - Classics (CLAS)**

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<td>3</td>
<td>Roman Literature and Society</td>
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<td>3</td>
<td>Greek Drama and the Theatre</td>
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<td>CLAS 309</td>
<td>3</td>
<td>The Greek and Roman Novel</td>
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<td>CLAS 311</td>
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<td>Catullus/Ovid</td>
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<tr>
<td>CLAS 320</td>
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### Classical Literature - Other Departments

Classical literature courses are also taught under the subject codes of English (ENGL), French (FREN), and Philosophy (PHIL).

<table>
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<td>ENGL 370</td>
<td>Theatre History: The Long Eighteenth Century</td>
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<td>ENGL 447</td>
<td>Crosscurrents/English Literature and European Literature 1</td>
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<td>PHIL 354</td>
<td>Plato</td>
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<td>PHIL 355</td>
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### Ancient History - All Departments

Ancient History courses are taught under several subject codes including: Anthropology (ANTH), Art History (ARTH), Classics (CLAS), History (HIST), and Religious Studies (RELG).

<table>
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<td>ARTH 209</td>
<td>Introduction to Ancient Art and Architecture</td>
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<td>CLAS 203</td>
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<td>CLAS 314</td>
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<td>CLAS 323</td>
<td>Intermediate Greek: Homer</td>
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<td>CLAS 404</td>
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<td>CLAS 490</td>
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<td>Ancient Mediterranean History</td>
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<td>HIST 231</td>
<td>Archaeology of the Ancient World</td>
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<tr>
<td>HIST 305</td>
<td>Ancient Warfare and Imperialism</td>
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<td>HIST 323</td>
<td>History and Sexuality 1</td>
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<td>HIST 368</td>
<td>Greek History: Classical Period</td>
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<td>HIST 369</td>
<td>Greek History: Early Greece</td>
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<td>HIST 375</td>
<td>Roman History: Early Empire</td>
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<td>Roman History: Later Empire</td>
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<td>HIST 378</td>
<td>Roman &amp; Greek Social History</td>
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<td>HIST 379</td>
<td>Greek History: Hellenistic Period</td>
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<td>HIST 391</td>
<td>Roman History: Republic</td>
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<td>HIST 400</td>
<td>Ancient Greece, Rome and China</td>
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<td>HIST 551</td>
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<tr>
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**Philosophy and Religion**

Philosophy and Religion courses are taught under several subject codes including: Classics (CLAS), Philosophy (PHIL), Political Science (POLI), and Religious Studies (RELG).

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<td>(3)</td>
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<td>(3)</td>
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<td>CLAS 426</td>
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<td>Greek Political Theory</td>
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<td>PHIL 350</td>
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<td>History and Philosophy of Ancient Science</td>
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<td>PHIL 353</td>
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<td>The Presocratic Philosophers</td>
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<td>PHIL 354</td>
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<tr>
<td>PHIL 452</td>
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<td>PHIL 453</td>
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**Modern Greek**

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<td>Intermediate Modern Greek Language</td>
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<tr>
<td>CLAS 332</td>
<td>(3)</td>
<td>The Modern Greek Novel</td>
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<tr>
<td>CLAS 333</td>
<td>(3)</td>
<td>Modern Greek Poetry</td>
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<tr>
<td>CLAS 335</td>
<td>(3)</td>
<td>Language and Civilization/Modern Greece 2</td>
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### Classics Topics Courses

The following Classics topics courses change topic each time they are taught. Consult the course instructor and Classics Adviser to verify toward which thematic area(s) the course may count for the term in which it is taken.

<table>
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<tr>
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### Bachelor of Arts (B.A.) - Minor Neo-Hellenic Concentration (18 credits)

This Minor immerses students in the rich literary and cultural tradition of Greece. It is designed to enable students to achieve linguistic proficiency in Modern Greek and to provide them with an understanding of the diachronic influence and the synchronic importance of the Modern Greek language, literature, and history in the contemporary global world of diversity and pluralism.

#### Complementary Courses

15-18 credits to be chosen from:

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<td>CLAS 331</td>
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<td>(3)</td>
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<td>CLAS 436</td>
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<td>HIST 349</td>
<td>(3)</td>
<td>Greece: Byzantium to Present</td>
</tr>
</tbody>
</table>

0-3 credits to be chosen from the list below (with adviser's approval, other courses might also be considered):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLAS 200</td>
<td>(3)</td>
<td>Introduction to Ancient Greek Literature</td>
</tr>
<tr>
<td>CLAS 202</td>
<td>(3)</td>
<td>Greek Civilization: Classical</td>
</tr>
<tr>
<td>CLAS 203</td>
<td>(3)</td>
<td>Greek Mythology</td>
</tr>
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<td>(3)</td>
<td>Greek Drama and the Theatre</td>
</tr>
<tr>
<td>CLAS 380</td>
<td>(3)</td>
<td>Ancient Greek Religion</td>
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<tr>
<td>CLAS 404</td>
<td>(3)</td>
<td>Classical Tradition</td>
</tr>
<tr>
<td>HIST 205</td>
<td>(3)</td>
<td>Ancient Mediterranean History</td>
</tr>
<tr>
<td>HIST 226</td>
<td>(3)</td>
<td>Eastern Europe in 20th Century</td>
</tr>
<tr>
<td>HIST 231</td>
<td>(3)</td>
<td>Archaeology of the Ancient World</td>
</tr>
<tr>
<td>HIST 368</td>
<td>(3)</td>
<td>Greek History: Classical Period</td>
</tr>
<tr>
<td>HIST 369</td>
<td>(3)</td>
<td>Greek History: Early Greece</td>
</tr>
<tr>
<td>HIST 379</td>
<td>(3)</td>
<td>Greek History: Hellenistic Period</td>
</tr>
</tbody>
</table>

Minimum 12 credits at the 300 level or above.

### Bachelor of Arts (B.A.) - Major Concentration Classics (36 credits)

Two separate streams allow students to put emphasis either on the ancient languages or on the culture of the ancient Mediterranean.
Complementary Courses (36 credits)

Students select one of the following two streams of study:

- Classical Language Stream
- Classical Studies Stream

Classical Language Stream

36 credits taken from the five thematic areas of Classics: Classical Languages, Classical Literature, Ancient History, Philosophy and Religion, Modern Greek with the specifications described below. For course choices, see the course lists provided for each area.

18 credits minimum in Classical Languages

- a minimum of 6 credits in each of two of the following areas:
  - Classical Literature
  - Ancient History
  - Philosophy and Religion
  - Modern Greek

- a maximum of 12 credits of 200-level courses.

Classical Studies Stream

36 credits taken from the five thematic areas of Classics: Classical Languages, Classical Literature, Ancient History, Philosophy and Religion, Modern Greek with the specifications described below. For course choices, see the course lists provided for each area.

9 credits minimum in Classical Languages

- a minimum of 12 credits in one of the following areas:
  - Classical Literature
  - Ancient History
  - Philosophy and Religion
  - Modern Greek

- a minimum of 3 credits in at least three different areas

- a minimum of 3 credits of 300-level or higher CLAS courses

- a maximum of 12 credits of 200-level courses.

Note: The same course may not count toward more than one thematic area requirement.

Classical Languages - Latin

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
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<tr>
<td>CLAS 210D2</td>
<td>(3)</td>
<td>Introductory Latin 1</td>
</tr>
<tr>
<td>CLAS 310</td>
<td>(3)</td>
<td>Reading Latin</td>
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<td>CLAS 311</td>
<td>(3)</td>
<td>Catullus/Ovid</td>
</tr>
<tr>
<td>CLAS 312</td>
<td>(3)</td>
<td>Intermediate Latin: Poetry</td>
</tr>
<tr>
<td>CLAS 313</td>
<td>(3)</td>
<td>Intermediate Latin: Cicero</td>
</tr>
<tr>
<td>CLAS 314</td>
<td>(3)</td>
<td>Intermediate Latin: Historians</td>
</tr>
<tr>
<td>CLAS 315</td>
<td>(3)</td>
<td>Intermediate Latin: Selections</td>
</tr>
<tr>
<td>CLAS 411</td>
<td>(3)</td>
<td>Advanced Latin: Epic</td>
</tr>
<tr>
<td>CLAS 412</td>
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<td>Advanced Latin: Lyric</td>
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<tr>
<td>CLAS 413</td>
<td>(3)</td>
<td>Advanced Latin: Satire</td>
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<tr>
<td>CLAS 414</td>
<td>(3)</td>
<td>Advanced Latin: History</td>
</tr>
<tr>
<td>CLAS 415</td>
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<td>Advanced Latin: Oratory</td>
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<tr>
<td>CLAS 416</td>
<td>(3)</td>
<td>Advanced Latin: Philosophy</td>
</tr>
<tr>
<td>CLAS 418</td>
<td>(3)</td>
<td>Advanced Latin: Special Topics</td>
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**Classical Languages - Ancient Greek**

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<tr>
<td>CLAS 321</td>
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<td>Intermediate Greek: Plato/Xenophon</td>
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<tr>
<td>CLAS 322</td>
<td>3</td>
<td>Intermediate Greek: Orators</td>
</tr>
<tr>
<td>CLAS 323</td>
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<td>CLAS 324</td>
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<td>Intermediate Greek: Poetry</td>
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<tr>
<td>CLAS 325</td>
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<td>Intermediate Greek: Later Prose</td>
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<td>3</td>
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<tr>
<td>CLAS 421</td>
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<td>CLAS 422</td>
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<td>CLAS 428</td>
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<td>Advanced Ancient Greek: Special Topics</td>
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<td>CLAS 525D1</td>
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<td>Ancient Greek Authors &amp; Texts</td>
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<tr>
<td>CLAS 525D2</td>
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**Classical Literature - Classics (CLAS)**

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<td>CLAS 208</td>
<td>3</td>
<td>Roman Literature and Society</td>
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<tr>
<td>CLAS 300</td>
<td>3</td>
<td>Greek Drama and the Theatre</td>
</tr>
<tr>
<td>CLAS 309</td>
<td>3</td>
<td>The Greek and Roman Novel</td>
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<tr>
<td>CLAS 311</td>
<td>3</td>
<td>Catullus/Ovid</td>
</tr>
<tr>
<td>CLAS 312</td>
<td>3</td>
<td>Intermediate Latin: Poetry</td>
</tr>
<tr>
<td>CLAS 313</td>
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<td>Intermediate Latin: Cicero</td>
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<td>CLAS 314</td>
<td>3</td>
<td>Intermediate Latin: Historians</td>
</tr>
<tr>
<td>CLAS 315</td>
<td>3</td>
<td>Intermediate Latin: Selections</td>
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<tr>
<td>CLAS 320</td>
<td>3</td>
<td>Reading Ancient Greek</td>
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<tr>
<td>CLAS 321</td>
<td>3</td>
<td>Intermediate Greek: Plato/Xenophon</td>
</tr>
<tr>
<td>CLAS 322</td>
<td>3</td>
<td>Intermediate Greek: Orators</td>
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<tr>
<td>CLAS 323</td>
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<td>CLAS 411</td>
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<tr>
<td>CLAS 412</td>
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<td>CLAS 413</td>
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<td>CLAS 414</td>
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<td>Advanced Latin: History</td>
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<td>Advanced Latin: Special Topics</td>
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<tr>
<td>CLAS 421</td>
<td>(3)</td>
<td>Advanced Ancient Greek: Epic</td>
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<tr>
<td>CLAS 422</td>
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<td>Advanced Ancient Greek: Lyric</td>
</tr>
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<td>CLAS 423</td>
<td>(3)</td>
<td>Advanced Ancient Greek: Drama</td>
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<td>CLAS 424</td>
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<td>CLAS 425</td>
<td>(3)</td>
<td>Advanced Greek: Oratory</td>
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<td>CLAS 426</td>
<td>(3)</td>
<td>Advanced Greek: Philosophy</td>
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<tr>
<td>CLAS 428</td>
<td>(3)</td>
<td>Advanced Ancient Greek: Special Topics</td>
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<tr>
<td>CLAS 490</td>
<td>(3)</td>
<td>Greek and Roman Historiography</td>
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<tr>
<td>CLAS 515D1</td>
<td>(3)</td>
<td>Latin Authors and Texts</td>
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<tr>
<td>CLAS 525D2</td>
<td>(3)</td>
<td>Ancient Greek Authors &amp; Texts</td>
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</tbody>
</table>

**Classical Literature - Other Departments**

Classical literature courses are also taught under the subject codes of English (ENGL), French (FREN), and Philosophy (PHIL).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
<th>Title</th>
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<tbody>
<tr>
<td>ENGL 347</td>
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<td>Great Writings of Europe 1</td>
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<tr>
<td>ENGL 370</td>
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<td>Theatre History: The Long Eighteenth Century</td>
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<tr>
<td>ENGL 447</td>
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<td>Crosscurrents/English Literature and European Literature 1</td>
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<tr>
<td>PHIL 354</td>
<td>(3)</td>
<td>Plato</td>
</tr>
<tr>
<td>PHIL 355</td>
<td>(3)</td>
<td>Aristotle</td>
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</tbody>
</table>

**Ancient History - All Departments**

Ancient History courses are taught under several subject codes including: Anthropology (ANTH), Art History (ARTH), Classics (CLAS), History (HIST), and Religious Studies (RELG).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
<th>Title</th>
</tr>
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<tbody>
<tr>
<td>ANTH 335</td>
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<td>Ancient Egyptian Civilization</td>
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<tr>
<td>ARTH 209</td>
<td>(3)</td>
<td>Introduction to Ancient Art and Architecture</td>
</tr>
<tr>
<td>CLAS 203</td>
<td>(3)</td>
<td>Greek Mythology</td>
</tr>
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<td>CLAS 314</td>
<td>(3)</td>
<td>Intermediate Latin: Historians</td>
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<tr>
<td>CLAS 323</td>
<td>(3)</td>
<td>Intermediate Greek: Homer</td>
</tr>
<tr>
<td>CLAS 380</td>
<td>(3)</td>
<td>Ancient Greek Religion</td>
</tr>
<tr>
<td>CLAS 404</td>
<td>(3)</td>
<td>Classical Tradition</td>
</tr>
<tr>
<td>CLAS 414</td>
<td>(3)</td>
<td>Advanced Latin: History</td>
</tr>
<tr>
<td>CLAS 424</td>
<td>(3)</td>
<td>Advanced Greek: History</td>
</tr>
<tr>
<td>CLAS 427</td>
<td>(3)</td>
<td>Advanced Ancient Greek: Documents</td>
</tr>
</tbody>
</table>
CLAS 490 (3) Greek and Roman Historiography
HIST 205 (3) Ancient Mediterranean History
HIST 231 (3) Archaeology of the Ancient World
HIST 305 (3) Ancient Warfare and Imperialism
HIST 323 (3) History and Sexuality I
HIST 368 (3) Greek History: Classical Period
HIST 369 (3) Greek History: Early Greece
HIST 375 (3) Roman History: Early Empire
HIST 376 (3) Roman History: Later Empire
HIST 378 (3) Roman & Greek Social History
HIST 379 (3) Greek History: Hellenistic Period
HIST 391 (3) Roman History: Republic
HIST 400 (3) Ancient Greece, Rome and China
HIST 407 (3) Topics in Ancient History
HIST 449 (3) Medicine in the Ancient World
HIST 450 (3) Ancient History Methods
HIST 451 (3) The Ancient Mediterranean City
HIST 550 (3) Ancient History: Seminar
HIST 551 (3) Ancient History: Research
RELG 326 (3) Ancient Christian Church AD54 - AD604

Philosophy and Religion

Philosophy and Religion courses are taught under several subject codes including: Classics (CLAS), Philosophy (PHIL), Political Science (POLI), and Religious Studies (RELG).

CLAS 203 (3) Greek Mythology
CLAS 323 (3) Intermediate Greek: Homer
CLAS 380 (3) Ancient Greek Religion
CLAS 416 (3) Advanced Latin: Philosophy
CLAS 421 (3) Advanced Ancient Greek: Epic
CLAS 426 (3) Advanced Greek: Philosophy
PHIL 345 (3) Greek Political Theory
PHIL 350 (3) History and Philosophy of Ancient Science
PHIL 353 (3) The Presocratic Philosophers
PHIL 354 (3) Plato
PHIL 355 (3) Aristotle
PHIL 452 (3) Later Greek Philosophy
PHIL 453 (3) Ancient Metaphysics and Natural Philosophy
PHIL 454 (3) Ancient Moral Theory
PHIL 550 (3) Seminar: Ancient Philosophy 1
PHIL 551 (3) Seminar: Ancient Philosophy 2
POLI 333 (3) Western Political Theory 1
RELG 201 (3) Religions of the Ancient Near East
RELG 202 (3) Religion of Ancient Israel
RELG 210 (3) Jesus of Nazareth
RELG 280 (6) Elementary New Testament Greek
RELG 326 (3) Ancient Christian Church AD54 - AD604
RELG 381 (3) Advanced New Testament Greek
RELG 482 (3) Exegesis of Greek New Testament
RELG 502 (3) Greco-Roman Judaism
RELG 583 (3) Hellenistic Religious Texts

Modern Greek
CLAS 230D1 (3) Introductory Modern Greek
CLAS 230D2 (3) Introductory Modern Greek
CLAS 331 (3) Intermediate Modern Greek Language
CLAS 332 (3) The Modern Greek Novel
CLAS 333 (3) Modern Greek Poetry
CLAS 335 (3) Language and Civilization/Modern Greece 2
CLAS 404 (3) Classical Tradition

Classics Topics Courses
The following Classics topics courses change topic each time they are taught. Consult the course instructor and Classics Adviser to verify toward which thematic area(s) the course may count for the term in which it is taken.
CLAS 347 (3) Special Topics in Classics
CLAS 348 (3) Greek and Roman Topography

3.11.10.7 Bachelor of Arts (B.A.) - Honours Classics (60 credits)
According to Faculty regulations, Honours students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.00.

Required Courses (6 credits)
CLAS 200 (3) Introduction to Ancient Greek Literature
CLAS 208 (3) Roman Literature and Society

Complementary Courses (54 credits)
54 credits taken from the five thematic areas of Classics: Classical Languages, Classical Literature, Ancient History, Philosophy and Religion, Modern Greek with the specifications described below. For course choices, see the course lists provided for each area.
6 credits minimum from Honours Reading list courses.
30 credits minimum in Classical Languages at the 200, 300, and 400 levels chosen as follows:
18 credits minimum in one Classical language, ancient Greek or Latin and
12 credits minimum in the other language;
a minimum of 6 credits of Classical languages at the 400 level.
A minimum of 6 credits in each of two of the following areas:
- Classical Literature
- Ancient History
- Philosophy and Religion
- Modern Greek
A maximum of 18 credits of 200-level courses.
Note: The same course may not count toward more than one thematic area requirement.

**Honours Reading Courses**
Minimum of 6 credits from:

- CLAS 515D1 (3) Latin Authors and Texts
- CLAS 515D2 (3) Latin Authors and Texts
- CLAS 525D1 (3) Ancient Greek Authors & Texts
- CLAS 525D2 (3) Ancient Greek Authors & Texts

**Classical Languages - Latin**
Minimum of 18 or 12 credits of Latin
Note: A minimum of 6 credits of Classical languages at the 400 level is required.

- CLAS 210 (6) Introductory Latin 1
- CLAS 210D1 (3) Introductory Latin 1
- CLAS 210D2 (3) Introductory Latin 1
- CLAS 310 (3) Reading Latin
- CLAS 311 (3) Catullus/Ovid
- CLAS 312 (3) Intermediate Latin: Poetry
- CLAS 313 (3) Intermediate Latin: Cicero
- CLAS 314 (3) Intermediate Latin: Historians
- CLAS 315 (3) Intermediate Latin: Selections
- CLAS 411 (3) Advanced Latin: Epic
- CLAS 412 (3) Advanced Latin: Lyric
- CLAS 413 (3) Advanced Latin: Satire
- CLAS 414 (3) Advanced Latin: History
- CLAS 415 (3) Advanced Latin: Oratory
- CLAS 416 (3) Advanced Latin: Philosophy
- CLAS 418 (3) Advanced Latin: Special Topics
- CLAS 515D1 (3) Latin Authors and Texts
- CLAS 515D2 (3) Latin Authors and Texts

**Classical Languages - Ancient Greek**
Minimum of 18 or 12 credits of Ancient Greek
Note: A minimum of 6 credits of Classical languages at the 400 level is required.

- CLAS 220D1 (3) Introductory Ancient Greek
- CLAS 220D2 (3) Introductory Ancient Greek
- CLAS 320 (3) Reading Ancient Greek
- CLAS 321 (3) Intermediate Greek: Plato/Xenophon
- CLAS 322 (3) Intermediate Greek: Orators
- CLAS 323 (3) Intermediate Greek: Homer
- CLAS 324 (3) Intermediate Greek: Poetry
- CLAS 325 (3) Intermediate Greek: Later Prose
- CLAS 326 (3) Intermediate Greek: Selections
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<tbody>
<tr>
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<td>CLAS 422</td>
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<td>Advanced Ancient Greek: Lyric</td>
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<td>CLAS 423</td>
<td>(3)</td>
<td>Advanced Ancient Greek: Drama</td>
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<td>CLAS 424</td>
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<td>Advanced Greek: History</td>
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<td>CLAS 425</td>
<td>(3)</td>
<td>Advanced Greek: Oratory</td>
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<td>Advanced Greek: Philosophy</td>
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<td>CLAS 427</td>
<td>(3)</td>
<td>Advanced Ancient Greek: Documents</td>
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<td>Advanced Ancient Greek: Special Topics</td>
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<td>(3)</td>
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<tr>
<td>CLAS 525D2</td>
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### Classical Literature - Classics (CLAS)

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<th>Credits</th>
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<td>Introduction to Ancient Greek Literature</td>
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<td>CLAS 203</td>
<td>(3)</td>
<td>Greek Mythology</td>
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<td>CLAS 208</td>
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<td>(3)</td>
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<td>(3)</td>
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<tr>
<td>CLAS 312</td>
<td>(3)</td>
<td>Intermediate Latin: Poetry</td>
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<tr>
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<td>Reading Ancient Greek</td>
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<tr>
<td>CLAS 321</td>
<td>(3)</td>
<td>Intermediate Greek: Plato/Xenophon</td>
</tr>
<tr>
<td>CLAS 322</td>
<td>(3)</td>
<td>Intermediate Greek: Orators</td>
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<td>CLAS 323</td>
<td>(3)</td>
<td>Intermediate Greek: Homer</td>
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<tr>
<td>CLAS 324</td>
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<td>Intermediate Greek: Poetry</td>
</tr>
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<tr>
<td>CLAS 326</td>
<td>(3)</td>
<td>Intermediate Greek: Selections</td>
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<tr>
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<td>Women in Greek Drama</td>
</tr>
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<td>CLAS 380</td>
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<td>CLAS 412</td>
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<td>CLAS 416</td>
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<td>CLAS 418</td>
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<td>CLAS 422</td>
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<td>CLAS 424</td>
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2011-2012, Undergraduate Programs, Courses and University Regulations, McGill University (Published August 17, 2011)
Advanced Greek: Oratory (CLAS 425)
Advanced Greek: Philosophy (CLAS 426)
Advanced Ancient Greek: Special Topics (CLAS 428)
Greek and Roman Historiography (CLAS 490)
Latin Authors and Texts (CLAS 515D1)
Latin Authors and Texts (CLAS 515D2)
Ancient Greek Authors & Texts (CLAS 525D1)
Ancient Greek Authors & Texts (CLAS 525D2)

Classical Literature - Other Departments

Classical Literature courses are also taught under the subject codes of English (ENGL), French (FREN), and Philosophy (PHIL).

ENGL 347 (3) Great Writings of Europe 1
ENGL 370 (3) Theatre History: The Long Eighteenth Century
ENGL 447 (3) Crosscurrents/English Literature and European Literature 1
PHIL 354 (3) Plato
PHIL 355 (3) Aristotle

Ancient History - All Departments

Ancient History courses are taught under several subject codes including: Anthropology (ANTH), Art History (ARTH), Classics (CLAS), History (HIST), and Religious Studies (RELG).

ANTH 335 (3) Ancient Egyptian Civilization
ARTH 209 (3) Introduction to Ancient Art and Architecture
CLAS 203 (3) Greek Mythology
CLAS 314 (3) Intermediate Latin: Historians
CLAS 323 (3) Intermediate Greek: Homer
CLAS 380 (3) Ancient Greek Religion
CLAS 404 (3) Classical Tradition
CLAS 414 (3) Advanced Latin: History
CLAS 424 (3) Advanced Greek: History
CLAS 427 (3) Advanced Ancient Greek: Documents
CLAS 490 (3) Greek and Roman Historiography
HIST 205 (3) Ancient Mediterranean History
HIST 231 (3) Archaeology of the Ancient World
HIST 305 (3) Ancient Warfare and Imperialism
HIST 323 (3) History and Sexuality 1
HIST 368 (3) Greek History: Classical Period
HIST 369 (3) Greek History: Early Greece
HIST 375 (3) Roman History: Early Empire
HIST 376 (3) Roman History: Later Empire
HIST 378 (3) Roman & Greek Social History
HIST 379 (3) Greek History: Hellenistic Period
HIST 391 (3) Roman History: Republic
HIST 400 (3) Ancient Greece, Rome and China
<table>
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<tr>
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<th>Credits</th>
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<tr>
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<td>HIST 450</td>
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<td>Ancient History Methods</td>
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<td>HIST 451</td>
<td>(3)</td>
<td>The Ancient Mediterranean City</td>
</tr>
<tr>
<td>HIST 550</td>
<td>(3)</td>
<td>Ancient History: Seminar</td>
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<tr>
<td>HIST 551</td>
<td>(3)</td>
<td>Ancient History: Research</td>
</tr>
<tr>
<td>RELG 326</td>
<td>(3)</td>
<td>Ancient Christian Church AD54 - AD604</td>
</tr>
</tbody>
</table>

**Philosophy and Religion**

Philosophy and Religion courses are taught under several subject codes including: Classics (CLAS), Philosophy (PHIL), Political Science (POLI), and Religious Studies (RELG).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
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<td>CLAS 323</td>
<td>(3)</td>
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<td>CLAS 421</td>
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<td>Advanced Ancient Greek: Epic</td>
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<td>CLAS 426</td>
<td>(3)</td>
<td>Advanced Greek: Philosophy</td>
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<tr>
<td>PHIL 345</td>
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<td>The Presocratic Philosophers</td>
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<td>Plato</td>
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<td>PHIL 453</td>
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<td>Ancient Metaphysics and Natural Philosophy</td>
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<td>PHIL 454</td>
<td>(3)</td>
<td>Ancient Moral Theory</td>
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<tr>
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<td>Religions of the Ancient Near East</td>
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<td>RELG 202</td>
<td>(3)</td>
<td>Religion of Ancient Israel</td>
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<tr>
<td>RELG 210</td>
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<tr>
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<td>Elementary New Testament Greek</td>
</tr>
<tr>
<td>RELG 326</td>
<td>(3)</td>
<td>Ancient Christian Church AD54 - AD604</td>
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<tr>
<td>RELG 381</td>
<td>(3)</td>
<td>Advanced New Testament Greek</td>
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<td>RELG 482</td>
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<td>Exegesis of Greek New Testament</td>
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<td>RELG 502</td>
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**Modern Greek**

<table>
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<td>(3)</td>
<td>Introductory Modern Greek</td>
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<tr>
<td>CLAS 331</td>
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</tr>
<tr>
<td>CLAS 332</td>
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<td>The Modern Greek Novel</td>
</tr>
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</table>
Classics Topics Courses
The following Classics topics courses change topic each time they are taught. Consult the course instructor and Classics Adviser to verify toward which thematic area(s) the course may count for the term in which it is taken.

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>CLAS 348</td>
<td>3</td>
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</tr>
</tbody>
</table>

### 3.11.10.8 Bachelor of Arts (B.A.) - Joint Honours Component Classics (36 credits)

Students wishing to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Prior to registering for each Joint Honours component, students should consult an adviser in each department for approval of their course selection and their interdisciplinary research project (if applicable). For Classics, see the Undergraduate Adviser.

According to Faculty regulations, Joint Honours students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.00.

### Complementary Courses (36 credits)

36 credits taken from the five thematic areas of Classics: Classical Languages, Classical Literature, Ancient History, Philosophy and Religion, Modern Greek with the specifications described below. For course choices, see the course lists provided for each area.

- A minimum of 24 credits in Classical Languages with a minimum of 3 credits at the 400 level.
- A minimum of 6 credits in each of two of the following areas:
  - Classical Literature
  - Ancient History
  - Philosophy and Religion
  - Modern Greek
- A maximum of 15 credits of 200-level courses.

Note: The same course may not count toward more than one thematic area requirement.

#### Classical Languages - Latin

<table>
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<tr>
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<tr>
<td>CLAS 310</td>
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<td>Reading Latin</td>
</tr>
<tr>
<td>CLAS 311</td>
<td>3</td>
<td>Catullus/Ovid</td>
</tr>
<tr>
<td>CLAS 312</td>
<td>3</td>
<td>Intermediate Latin: Poetry</td>
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<tr>
<td>CLAS 313</td>
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<td>3</td>
<td>Intermediate Latin: Historians</td>
</tr>
<tr>
<td>CLAS 315</td>
<td>3</td>
<td>Intermediate Latin: Selections</td>
</tr>
<tr>
<td>CLAS 411</td>
<td>3</td>
<td>Advanced Latin: Epic</td>
</tr>
<tr>
<td>CLAS 412</td>
<td>3</td>
<td>Advanced Latin: Lyric</td>
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<td>CLAS 413</td>
<td>3</td>
<td>Advanced Latin: Satire</td>
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<td>CLAS 414</td>
<td>3</td>
<td>Advanced Latin: History</td>
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<td>CLAS 415</td>
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<td>Advanced Latin: Oratory</td>
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<td>3</td>
<td>Advanced Latin: Philosophy</td>
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<tr>
<td>CLAS 418</td>
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<td>Advanced Latin: Special Topics</td>
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<td>Course Title</td>
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**Classical Languages - Ancient Greek**

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<td>CLAS 321</td>
<td>(3)</td>
<td>Intermediate Greek: Plato/Xenophon</td>
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<tr>
<td>CLAS 322</td>
<td>(3)</td>
<td>Intermediate Greek: Orators</td>
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<td>CLAS 323</td>
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<td>Intermediate Greek: Homer</td>
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<td>Intermediate Greek: Poetry</td>
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<td>Intermediate Greek: Selections</td>
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<td>CLAS 421</td>
<td>(3)</td>
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**Classical Literature - Classics (CLAS)**

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<td>CLAS 208</td>
<td>(3)</td>
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<td>(3)</td>
<td>Greek Drama and the Theatre</td>
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<tr>
<td>CLAS 309</td>
<td>(3)</td>
<td>The Greek and Roman Novel</td>
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<tr>
<td>CLAS 311</td>
<td>(3)</td>
<td>Catullus/Ovid</td>
</tr>
<tr>
<td>CLAS 312</td>
<td>(3)</td>
<td>Intermediate Latin: Poetry</td>
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<tr>
<td>CLAS 313</td>
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<td>(3)</td>
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<tr>
<td>CLAS 320</td>
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<td>Reading Ancient Greek</td>
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<tr>
<td>CLAS 321</td>
<td>(3)</td>
<td>Intermediate Greek: Plato/Xenophon</td>
</tr>
<tr>
<td>CLAS 322</td>
<td>(3)</td>
<td>Intermediate Greek: Orators</td>
</tr>
<tr>
<td>CLAS 323</td>
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<tr>
<td>CLAS 324</td>
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CLAS 370 (3) Women in Greek Drama
CLAS 380 (3) Ancient Greek Religion
CLAS 411 (3) Advanced Latin: Epic
CLAS 412 (3) Advanced Latin: Lyric
CLAS 413 (3) Advanced Latin: Satire
CLAS 414 (3) Advanced Latin: History
CLAS 415 (3) Advanced Latin: Oratory
CLAS 416 (3) Advanced Latin: Philosophy
CLAS 418 (3) Advanced Latin: Special Topics
CLAS 421 (3) Advanced Ancient Greek: Epic
CLAS 422 (3) Advanced Ancient Greek: Lyric
CLAS 423 (3) Advanced Ancient Greek: Drama
CLAS 424 (3) Advanced Greek: History
CLAS 425 (3) Advanced Greek: Oratory
CLAS 426 (3) Advanced Greek: Philosophy
CLAS 428 (3) Advanced Ancient Greek: Special Topics
CLAS 490 (3) Greek and Roman Historiography
CLAS 515D1 (3) Latin Authors and Texts
CLAS 515D2 (3) Latin Authors and Texts
CLAS 525D1 (3) Ancient Greek Authors & Texts
CLAS 525D2 (3) Ancient Greek Authors & Texts

**Classical Literature - Other Departments**

Classical Literature courses are also taught under the subject codes of English (ENGL), French (FREN), and Philosophy (PHIL).

ENGL 347 (3) Great Writings of Europe 1
ENGL 370 (3) Theatre History: The Long Eighteenth Century
ENGL 447 (3) Crosscurrents/English Literature and European Literature 1
PHIL 354 (3) Plato
PHIL 355 (3) Aristotle

**Ancient History - All Departments**

Ancient History courses are taught under several subject codes including: Anthropology (ANTH), Art History (ARTH), Classics (CLAS), History (HIST), and Religious Studies (RELG).

ANTH 335 (3) Ancient Egyptian Civilization
ARTH 209 (3) Introduction to Ancient Art and Architecture
CLAS 203 (3) Greek Mythology
CLAS 314 (3) Intermediate Latin: Historians
CLAS 323 (3) Intermediate Greek: Homer
CLAS 380 (3) Ancient Greek Religion
CLAS 404 (3) Classical Tradition
CLAS 414 (3) Advanced Latin: History
CLAS 424 (3) Advanced Greek: History
CLAS 427 (3) Advanced Ancient Greek: Documents
CLAS 490 (3) Greek and Roman Historiography
HIST 205 (3) Ancient Mediterranean History
HIST 231 (3) Archaeology of the Ancient World
HIST 305 (3) Ancient Warfare and Imperialism
HIST 323 (3) History and Sexuality 1
HIST 368 (3) Greek History: Classical Period
HIST 369 (3) Greek History: Early Greece
HIST 375 (3) Roman History: Early Empire
HIST 376 (3) Roman History: Later Empire
HIST 378 (3) Roman & Greek Social History
HIST 379 (3) Greek History: Hellenistic Period
HIST 391 (3) Roman History: Republic
HIST 400 (3) Ancient Greece, Rome and China
HIST 407 (3) Topics in Ancient History
HIST 449 (3) Medicine in the Ancient World
HIST 450 (3) Ancient History Methods
HIST 451 (3) The Ancient Mediterranean City
HIST 550 (3) Ancient History: Seminar
HIST 551 (3) Ancient History: Research
RELG 326 (3) Ancient Christian Church AD54 - AD604

**Philosophy and Religion**

Philosophy and Religion courses are taught under several subject codes including: Classics (CLAS), Philosophy (PHIL), Political Science (POLI), and Religious Studies (RELG).

CLAS 203 (3) Greek Mythology
CLAS 323 (3) Intermediate Greek: Homer
CLAS 380 (3) Ancient Greek Religion
CLAS 416 (3) Advanced Latin: Philosophy
CLAS 421 (3) Advanced Ancient Greek: Epic
CLAS 426 (3) Advanced Greek: Philosophy
PHIL 345 (3) Greek Political Theory
PHIL 350 (3) History and Philosophy of Ancient Science
PHIL 353 (3) The Presocratic Philosophers
PHIL 354 (3) Plato
PHIL 355 (3) Aristotle
PHIL 452 (3) Later Greek Philosophy
PHIL 453 (3) Ancient Metaphysics and Natural Philosophy
PHIL 454 (3) Ancient Moral Theory
PHIL 550 (3) Seminar: Ancient Philosophy 1
PHIL 551 (3) Seminar: Ancient Philosophy 2
POLI 333 (3) Western Political Theory 1
RELG 201 (3) Religions of the Ancient Near East
RELG 202 (3) Religion of Ancient Israel
RELG 210 (3) Jesus of Nazareth
RELG 280 (6) Elementary New Testament Greek
RELG 326 (3) Ancient Christian Church AD54 - AD604
RELG 381 (3) Advanced New Testament Greek
RELG 482 (3) Exegesis of Greek New Testament
RELG 502 (3) Greco-Roman Judaism
RELG 583 (3) Hellenistic Religious Texts

Modern Greek

CLAS 230D1 (3) Introductory Modern Greek
CLAS 230D2 (3) Introductory Modern Greek
CLAS 311 (3) Intermediate Modern Greek Language
CLAS 332 (3) The Modern Greek Novel
CLAS 333 (3) Modern Greek Poetry
CLAS 335 (3) Language and Civilization/Modern Greece 2
CLAS 404 (3) Classical Tradition

Classics Topics Courses

The following Classics topics courses change topic each time they are taught. Consult the course instructor and Classics Adviser to verify toward which thematic area(s) the course may count for the term in which it is taken.

CLAS 347 (3) Special Topics in Classics
CLAS 348 (3) Greek and Roman Topography

3.11.11 Minor in Cognitive Science

Students with an interest in cognition may want to consider the Minor in Cognitive Science. For more information, see Faculty of Science > Cognitive Science.

3.11.12 Computer Science (COMP)

3.11.12.1 Location

McConnell Engineering Building, Room 318
3480 University Street
Montreal, Quebec H3A 2A7
Telephone: 514-398-7071
Fax: 514-398-3883

Undergraduate Student Affairs Office
Lorne Trottier Building, Room 2060
3630 University Street
Montreal, Quebec H3A 2B2
Telephone: 514-398-7071 ext. 00739
Fax: 514-398-4653

Email: ugrad-sec@cs.mcgill.ca
Website: www.cs.mcgill.ca
3.11.12.2 About Computer Science

For a list of teaching staff, an outline of the nature of computer science, and the opportunities for study in this discipline, see Faculty of Science > Computer Science (COMP). The School also offers a program in the Faculty of Engineering and a major concentration for the Bachelor of Arts and Science.

Students must have completed MATH 133, MATH 140, MATH 141 or equivalents in order to begin taking courses in computer science programs.

Note: At the time of registration in the penultimate year, students must declare their intent to receive the Minor concentration in Computer Science.

3.11.12.3 Bachelor of Arts (B.A.) - Minor Concentration Computer Science (18 credits)

The Minor Concentration Computer Science is designed for students who want to gain a basic understanding of computer science principles and may be taken in conjunction with any program in the Faculty of Arts.

Students are strongly encouraged to talk to an adviser of the School before choosing their complementary courses to ensure they follow an approved course sequence.

MATH 133, MATH 140 and MATH 141 (or their equivalents) must be completed prior to taking courses in this program.

Required Courses (9 credits)

Notes for the list below:

* Students who have sufficient knowledge in a programming language do not need to take COMP 202 but can replace it with an additional Computer Science complementary course.

** Students take either COMP 203 or COMP 250 but not both.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 202*</td>
<td>Introduction to Computing 1</td>
<td>3</td>
</tr>
<tr>
<td>COMP 203**</td>
<td>Introduction to Computing 2</td>
<td>3</td>
</tr>
<tr>
<td>COMP 206</td>
<td>Introduction to Software Systems</td>
<td>3</td>
</tr>
<tr>
<td>COMP 250**</td>
<td>Introduction to Computer Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Complementary Courses (9 credits)

9 credits selected from the following list or from Computer Science (COMP) courses at the 300 level or above excluding COMP 364, COMP 396, COMP 400, and COMP 431.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 230</td>
<td>Logic and Computability</td>
<td>3</td>
</tr>
<tr>
<td>COMP 251</td>
<td>Data Structures and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>COMP 273</td>
<td>Introduction to Computer Systems</td>
<td>3</td>
</tr>
<tr>
<td>COMP 280</td>
<td>History and Philosophy of Computing</td>
<td>3</td>
</tr>
<tr>
<td>MATH 222</td>
<td>Calculus 3</td>
<td>3</td>
</tr>
<tr>
<td>MATH 240</td>
<td>Discrete Structures I</td>
<td>3</td>
</tr>
</tbody>
</table>

3.11.12.4 Bachelor of Arts (B.A.) - Supplementary Minor Concentration in Computer Science (18 credits)

This Supplementary Minor Concentration may be taken only by students registered in the Major Concentration Computer Science. There may be no overlap in credits taken for this Supplementary Minor Concentration and the Major Concentration Computer Science. Taken together, these constitute a program very close to the Major Computer Science offered by the Faculty of Science.

Students with two programs in the same department/unit must have a third program in a different department/unit to be eligible to graduate. Please refer to the Faculty of Arts regulations for "Faculty Degree Requirements", "About Program Requirements", and "Departmental Programs" for the Multi-track System options.

Complementary Courses (18 credits)

18 credits selected from Computer Science (COMP) courses at the 300 level or above excluding COMP 364, COMP 396, COMP 400, and COMP 431.

Students may also select courses from the list below with a maximum of 3 credits of MATH courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECSE 508</td>
<td>Multi-Agent Systems</td>
<td>3</td>
</tr>
<tr>
<td>MATH 223</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>
Bachelor of Arts (B.A.) - Major Concentration Computer Science (36 credits)

This Major concentration represents an in-depth introduction to computer science and its sub-areas. Students that are interested in further study in Computer Science can combine the Major Concentration Computer Science with the Supplementary Minor in Computer Science to constitute a program very close to the Major Computer Science offered by the Faculty of Science. For further information, please consult the Program Adviser.

Students with two programs in the same department/unit must have a third program in a different department/unit to be eligible to graduate. Please refer to the Faculty of Arts regulations for "Faculty Degree Requirements", "About Program Requirements", and "Departmental Programs" for the Multi-track System options.

Required Courses (21 credits)

MATH 133, MATH 140, and MATH 141 (or their equivalents) must be completed prior to taking courses in this program.

Notes for the list below:

* Students who have sufficient knowledge in a programming language do not need to take COMP 202 but can replace it with an additional computer science complementary course.

** Students take either COMP 203 or COMP 250 but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 202*</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>COMP 203**</td>
<td>3</td>
<td>Introduction to Computing 2</td>
</tr>
<tr>
<td>COMP 206</td>
<td>3</td>
<td>Introduction to Software Systems</td>
</tr>
<tr>
<td>COMP 250**</td>
<td>3</td>
<td>Introduction to Computer Science</td>
</tr>
<tr>
<td>COMP 251</td>
<td>3</td>
<td>Data Structures and Algorithms</td>
</tr>
<tr>
<td>COMP 273</td>
<td>3</td>
<td>Introduction to Computer Systems</td>
</tr>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 240</td>
<td>3</td>
<td>Discrete Structures 1</td>
</tr>
</tbody>
</table>

Complementary Courses (15 credits)

15 credits selected as follows:

3-6 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 223</td>
<td>3</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 318</td>
<td>3</td>
<td>Mathematical Logic</td>
</tr>
<tr>
<td>MATH 323</td>
<td>3</td>
<td>Probability</td>
</tr>
<tr>
<td>MATH 324</td>
<td>3</td>
<td>Statistics</td>
</tr>
<tr>
<td>MATH 340</td>
<td>3</td>
<td>Discrete Structures 2</td>
</tr>
</tbody>
</table>

At least 3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 330</td>
<td>3</td>
<td>Theoretical Aspects: Computer Science</td>
</tr>
<tr>
<td>COMP 350</td>
<td>3</td>
<td>Numerical Computing</td>
</tr>
<tr>
<td>COMP 360</td>
<td>3</td>
<td>Algorithm Design Techniques</td>
</tr>
</tbody>
</table>

At least 3 credits from:
COMP 302 (3) Programming Languages and Paradigms
COMP 303 (3) Software Development

The remaining credits are selected from Computer Science (COMP) courses at the 300 level or above excluding COMP 364, COMP 396, COMP 400, and COMP 431. The following courses may also be taken:

COMP 230 (3) Logic and Computability
ECSE 508 (3) Multi-Agent Systems

3.11.12.6 Bachelor of Arts (B.A.) - Major Concentration Software Engineering (36 credits)

The Major Concentration Software Engineering is a 36-37 credit program that focuses on the techniques and methodology required to design and develop complex software systems and covers the subject commonly known as "Software Engineering". The program may be used to satisfy part of the requirements for a B.A. degree.

MATH 133, MATH 140, and MATH 141 (or their equivalents) must be completed prior to taking courses in this program.

Note: This program does not lead to certification as a Professional Engineer.

Required Courses (30 credits)

* Note: Students who have sufficient knowledge in a programming language do not need to take COMP 202 but can replace it with an additional Computer Science complementary course.

COMP 202* (3) Introduction to Computing 1
COMP 206 (3) Introduction to Software Systems
COMP 250 (3) Introduction to Computer Science
COMP 251 (3) Data Structures and Algorithms
COMP 273 (3) Introduction to Computer Systems
COMP 302 (3) Programming Languages and Paradigms
COMP 303 (3) Software Development
COMP 421 (3) Database Systems
MATH 223 (3) Linear Algebra
MATH 240 (3) Discrete Structures 1

Complementary Courses (6 credits)

6-7 credits selected from the following list or from Computer Science (COMP) courses at the 300 level or above excluding COMP 364, COMP 396, and COMP 431.

COMP 322 (1) Introduction to C++
COMP 361D1 (3) Software Engineering Project
COMP 361D2 (3) Software Engineering Project
COMP 529 (4) Software Architecture
COMP 533 (3) Object-Oriented Software Development

3.11.12.7 Computer Science (COMP) Related Programs

3.11.12.7.1 Joint Honours in Mathematics and Computer Science

For more information, see Faculty of Science > Mathematics and Statistics (MATH). Admission to the program is based on a strong performance in CEGEP-level mathematics courses. Students must consult an Honours adviser in both departments.

According to Faculty regulations, Joint Honours students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.00.
3.11.13 East Asian Studies (EAST)

3.11.13.1 Location
3434 McTavish Street
Montreal, Quebec H3A 1X9
Telephone: 514-398-6742
Fax: 514-398-1882
Email: asian.studies@mcgill.ca
Website: www.mcgill.ca/eas

3.11.13.2 About East Asian Studies
Heirs to ancient cultures and traditions that are rich and complex, East Asian societies are among the most dynamic and rapidly developing in the world today and are having an increasing impact on the global scene, economically, politically, and culturally. The study of the languages and cultures of East Asia, whether at the Major or Minor concentration or Honours level, offers the student an intellectually challenging and personally stimulating educational experience. While offering a different perspective on the human condition, East Asian Studies provides excellent preparation for a future career in the professions, international business management, education, law, journalism and communications, in addition to the necessary training for advanced study at the graduate level.

For complementary courses in the East Asian field, refer to the Departmental listing and the list of courses offered by other departments and in other faculties.

3.11.13.3 East Asian Studies (EAST) Faculty

Chair
Robin D.S. Yates

Professors
Kenneth Dean; B.A.(Brown), M.A., Ph.D.(Stan.)
Grace S. Fong; B.A., M.A.(Tor.), Ph.D.(Br. Col.)
Thomas LaMarre; B.A.(G'town), M.A., Ph.D.(Chic.), D.Sc.(d'Aix-Marseille II)
Robin D.S. Yates; B.A., M.A.(Oxf.), M.A.(Calif.), Ph.D.(Harv.)

Associate Professor
Griet Vankeerberghen; Licence(Louvain), Ph.D.(Princ.)

Assistant Professors
Victor Fan; B.M.(Roch.), MFA(USC), Ph.D.(Yale)
Yuriko Furuhata; B.A.(Int'l. Christian), M.A.(N. Mexico), Ph.D.(Brown)
Adrienne Hurley; B.A.(Colo.), M.A.(Mich.), Ph.D.(Calif.)

Lecturers
Jennie Chang; B.A.(Taiwan), M.A.(Harv.)
Myung Hee Kim; B.A., M.A.(Montr.)
Miwako Uesaka; B.Sc.(Kyoto), M.A.(McG.)
Bill Wang; B.A.(Heilongjiang), M.A.(Calg.)

Associate Members
Lara Braitstein (Religious Studies)
Christopher Green (Economics)
Victor Hori (Religious Studies)
Associate Members

Sandra Hyde (Anthropology)
Erik Kuhonta (Political Science)
John Kurien (Economics)
Catherine La (Political Science)
Lorenz Lüthi (History and Classical Studies)
Yuzo Ota (History and Classical Studies)
Junko Shimoyama (Linguistics)
Sarah Turner (Geography)

3.11.13.4 Bachelor of Arts (B.A.) - Minor Concentration East Asian Language and Literature (18 credits)

This program may be expanded to the Major Concentration East Asian Studies.

Complementary Courses (18 credits)

18 credits selected as specified below.

Introduction to East Asian Culture

3 credits, one of the following courses:

- EAST 211 (3) Introduction: East Asian Culture: China
- EAST 212 (3) Introduction: East Asian Culture: Japan
- EAST 213 (3) Introduction: East Asian Culture: Korea

East Asian Language

9 credits of language (see the list below). Students may meet this requirement by passing the first level of Korean, Chinese or Japanese with a grade of “C” or better. Students with prior knowledge of an Asian language may substitute a second level in place of a first level. Or, these students may take 6 credits of language at the 400-level or above from the list and an additional 3 credits of East Asian Studies (EAST) courses.

Note: Admission to language courses is subject to placement tests.

- EAST 220D1 (4.5) First Level Korean
- EAST 220D2 (4.5) First Level Korean
- EAST 230D1 (4.5) First Level Chinese
- EAST 230D2 (4.5) First Level Chinese
- EAST 240D1 (4.5) First Level Japanese
- EAST 240D2 (4.5) First Level Japanese
- EAST 320D1 (4.5) Second Level Korean
- EAST 320D2 (4.5) Second Level Korean
- EAST 330D1 (4.5) Second Level Chinese
- EAST 330D2 (4.5) Second Level Chinese
- EAST 340D1 (4.5) Second Level Japanese
- EAST 340D2 (4.5) Second Level Japanese
- EAST 420 (3) Third Level Korean 1
- EAST 421 (3) Third Level Korean 2
- EAST 430D1 (3) Third Level Chinese
- EAST 430D2 (3) Third Level Chinese
- EAST 440D1 (3) Third Level Japanese
<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Course Title</th>
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<tr>
<td>EAST 440D2</td>
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<td>Third Level Japanese</td>
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<td>EAST 520</td>
<td>(3)</td>
<td>Fourth Level Korean 1</td>
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<tr>
<td>EAST 521</td>
<td>(3)</td>
<td>Fourth Level Korean 2</td>
</tr>
<tr>
<td>EAST 530D1</td>
<td>(3)</td>
<td>Fourth Level Chinese</td>
</tr>
<tr>
<td>EAST 530D2</td>
<td>(3)</td>
<td>Fourth Level Chinese</td>
</tr>
<tr>
<td>EAST 533</td>
<td>(3)</td>
<td>Classical Chinese 1</td>
</tr>
<tr>
<td>EAST 534</td>
<td>(3)</td>
<td>Classical Chinese 2</td>
</tr>
<tr>
<td>EAST 535</td>
<td>(3)</td>
<td>Chinese for Business 1</td>
</tr>
<tr>
<td>EAST 536</td>
<td>(3)</td>
<td>Chinese for Business 2</td>
</tr>
<tr>
<td>EAST 537D1</td>
<td>(3)</td>
<td>China Today Through Translation</td>
</tr>
<tr>
<td>EAST 537D2</td>
<td>(3)</td>
<td>China Today Through Translation</td>
</tr>
<tr>
<td>EAST 540D1</td>
<td>(3)</td>
<td>Fourth Level Japanese</td>
</tr>
<tr>
<td>EAST 540D2</td>
<td>(3)</td>
<td>Fourth Level Japanese</td>
</tr>
<tr>
<td>EAST 543</td>
<td>(3)</td>
<td>Classical Japanese 1</td>
</tr>
<tr>
<td>EAST 544</td>
<td>(3)</td>
<td>Classical Japanese 2</td>
</tr>
</tbody>
</table>

**East Asian Studies (EAST)**

6 credits at the 300 level or above in East Asian Studies (EAST) courses selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAST 303</td>
<td>(3)</td>
<td>Current Topics: Chinese Studies 1</td>
</tr>
<tr>
<td>EAST 304</td>
<td>(3)</td>
<td>Current Topics: Chinese Studies 2</td>
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<tr>
<td>EAST 305</td>
<td>(3)</td>
<td>Current Topics: Japanese Studies 1</td>
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<tr>
<td>EAST 306</td>
<td>(3)</td>
<td>Current Topics: Japanese Studies 2</td>
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<tr>
<td>EAST 307</td>
<td>(3)</td>
<td>Topics: Chinese Language and Literature 1</td>
</tr>
<tr>
<td>EAST 308</td>
<td>(3)</td>
<td>Topics: Chinese Language and Literature 2</td>
</tr>
<tr>
<td>EAST 313</td>
<td>(3)</td>
<td>Current Topics: Korean Studies 1</td>
</tr>
<tr>
<td>EAST 314</td>
<td>(3)</td>
<td>Current Topics: Korean Studies 2</td>
</tr>
<tr>
<td>EAST 315</td>
<td>(3)</td>
<td>Survey: Modern Korean Literature in Translation</td>
</tr>
<tr>
<td>EAST 350</td>
<td>(3)</td>
<td>Gender and Sexuality in Chinese Literature</td>
</tr>
<tr>
<td>EAST 351</td>
<td>(3)</td>
<td>Women Writers of China</td>
</tr>
<tr>
<td>EAST 352</td>
<td>(3)</td>
<td>Critical Approaches to Chinese Literature</td>
</tr>
<tr>
<td>EAST 353</td>
<td>(3)</td>
<td>Approaches to Chinese Cinema</td>
</tr>
<tr>
<td>EAST 354</td>
<td>(3)</td>
<td>Taoist and Buddhist Apocalypses</td>
</tr>
<tr>
<td>EAST 356</td>
<td>(3)</td>
<td>Modern &amp; Contemporary Chinese Art</td>
</tr>
<tr>
<td>EAST 362</td>
<td>(3)</td>
<td>Japanese Cinema</td>
</tr>
<tr>
<td>EAST 363</td>
<td>(3)</td>
<td>Aesthetics and Politics of Vision Premodern Japan</td>
</tr>
<tr>
<td>EAST 364</td>
<td>(3)</td>
<td>Mass Culture and Postwar Japan</td>
</tr>
<tr>
<td>EAST 370</td>
<td>(3)</td>
<td>History of Sexuality in Japan</td>
</tr>
<tr>
<td>EAST 385</td>
<td>(3)</td>
<td>Society and Community in Korea</td>
</tr>
<tr>
<td>EAST 390</td>
<td>(3)</td>
<td>The Chinese Family in History</td>
</tr>
<tr>
<td>EAST 453</td>
<td>(3)</td>
<td>Topics: Chinese Literature</td>
</tr>
<tr>
<td>EAST 454</td>
<td>(3)</td>
<td>Topics: Chinese Cinema</td>
</tr>
<tr>
<td>EAST 456</td>
<td>(3)</td>
<td>Chinese Drama and Popular Culture</td>
</tr>
<tr>
<td>EAST 457</td>
<td>(3)</td>
<td>Brushwork in Chinese Painting</td>
</tr>
<tr>
<td>Course Code</td>
<td>Credits</td>
<td>Course Title</td>
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<tr>
<td>-------------</td>
<td>---------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>EAST 461</td>
<td>3</td>
<td>Inventing Modern Japanese Novel</td>
</tr>
<tr>
<td>EAST 462</td>
<td>3</td>
<td>Japan in Asia</td>
</tr>
<tr>
<td>EAST 464</td>
<td>3</td>
<td>Image, Text, Performance</td>
</tr>
<tr>
<td>EAST 466</td>
<td>3</td>
<td>Feminism and Japan</td>
</tr>
<tr>
<td>EAST 467</td>
<td>3</td>
<td>Topics: Japanese Cinema</td>
</tr>
<tr>
<td>EAST 490</td>
<td>3</td>
<td>Confucius and the Classics</td>
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<tr>
<td>EAST 491</td>
<td>3</td>
<td>Tutorial: East Asian Languages and Literatures 1</td>
</tr>
<tr>
<td>EAST 492</td>
<td>3</td>
<td>Tutorial: East Asian Languages and Literatures 2</td>
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<tr>
<td>EAST 493</td>
<td>3</td>
<td>Special Topics: East Asian Studies 1</td>
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<td>EAST 501</td>
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<td>Advanced Topics in Japanese Studies 1</td>
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<td>EAST 502</td>
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<td>EAST 503</td>
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<td>Advanced Topics in Chinese Studies 1</td>
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<tr>
<td>EAST 504</td>
<td>3</td>
<td>Advanced Topics in Chinese Studies 2</td>
</tr>
<tr>
<td>EAST 515</td>
<td>3</td>
<td>Seminar: Beyond Orientalism</td>
</tr>
<tr>
<td>EAST 550</td>
<td>3</td>
<td>Classical Chinese Poetry Themes and Genres</td>
</tr>
<tr>
<td>EAST 551</td>
<td>3</td>
<td>Technologies of Self in Early China</td>
</tr>
<tr>
<td>EAST 552</td>
<td>3</td>
<td>The Yijing (Book of Changes)</td>
</tr>
<tr>
<td>EAST 559</td>
<td>3</td>
<td>Advanced Topics: Chinese Literature</td>
</tr>
<tr>
<td>EAST 562</td>
<td>3</td>
<td>Japanese Literary Theory and Practice</td>
</tr>
<tr>
<td>EAST 563</td>
<td>3</td>
<td>Images, Ideograms, Aesthetics</td>
</tr>
<tr>
<td>EAST 564</td>
<td>3</td>
<td>Structures of Modernity: Japan</td>
</tr>
<tr>
<td>EAST 569</td>
<td>3</td>
<td>Advanced Topics: Japanese Literature</td>
</tr>
<tr>
<td>EAST 582</td>
<td>3</td>
<td>Japanese Culture and Society</td>
</tr>
</tbody>
</table>

3.11.13.5 Bachelor of Arts (B.A.) - Minor Concentration East Asian Cultural Studies (18 credits)

This program may be expanded to the Major Concentration East Asian Studies.

**Introduction to East Asian Culture**

6 credits, two of the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAST 211</td>
<td>3</td>
<td>Introduction: East Asian Culture: China</td>
</tr>
<tr>
<td>EAST 212</td>
<td>3</td>
<td>Introduction: East Asian Culture: Japan</td>
</tr>
<tr>
<td>EAST 213</td>
<td>3</td>
<td>Introduction: East Asian Culture: Korea</td>
</tr>
</tbody>
</table>

**East Asian Literature, Culture and Society**

12 credits of courses in East Asian Literature, Culture and Society selected from the list below.

**East Asian Studies (EAST)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAST 214</td>
<td>3</td>
<td>Japanese Animation &amp; New Media</td>
</tr>
<tr>
<td>EAST 215</td>
<td>3</td>
<td>Introduction to East Asian Art</td>
</tr>
<tr>
<td>EAST 303</td>
<td>3</td>
<td>Current Topics: Chinese Studies 1</td>
</tr>
<tr>
<td>EAST 304</td>
<td>3</td>
<td>Current Topics: Chinese Studies 2</td>
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<tr>
<td>EAST 305</td>
<td>3</td>
<td>Current Topics: Japanese Studies 1</td>
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<tr>
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**Anthropology (ANTH)**

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**Economics (ECON)**

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**History (HIST)**

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**Management (ORGB)**

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**Political Science (POLI)**
POLI 323  (3)  Developing Areas/China and Japan
POLI 349  (3)  Foreign Policy: Asia

Religious Studies (RELG)

RELG 253  (3)  Religions of East Asia
RELG 264  (3)  Introductory Tibetan 1
RELG 265  (3)  Introductory Tibetan 2
RELG 339  (3)  Gender & Sexuality in Buddhism
RELG 344  (3)  Mahayana Buddhism
RELG 352  (3)  Japanese Religions
RELG 354  (3)  Chinese Religions
RELG 364  (3)  Intermediate Tibetan 1
RELG 365  (3)  Intermediate Tibetan 2
RELG 442  (3)  Pure Land Buddhism
RELG 443  (3)  Japanese Esoteric Buddhism
RELG 451  (3)  Zen: Maxims and Methods
RELG 452  (3)  East Asian Buddhism
RELG 464  (3)  Advanced Tibetan 1
RELG 465  (3)  Advanced Tibetan 2
RELG 549  (3)  Japanese Buddhist Philosophy
RELG 557  (3)  Asian Ethical Systems

3.11.13.6 Bachelor of Arts (B.A.) - Minor Concentration Supplementary East Asian Language (18 credits)

This program may not be expanded to the Major Concentration East Asian Studies.

The program offers students who have a background in an East Asian language the opportunity to study this language at the advanced level (300 level and above), including the classical language.

Complementary Courses (18 credits)

There are two options.

18 credits in second, third, or fourth level language courses in a single East Asian language, or a combination of an advanced language and other courses in East Asian culture, literature, or society at the 300 level or above, chosen in consultation with the Departmental Program Adviser.

3.11.13.7 Bachelor of Arts (B.A.) - Major Concentration East Asian Studies (36 credits)

Complementary Courses (36 credits)

36 credits selected as specified below.

Introduction to East Asian Culture

6 credits, two of the following courses:

EAST 211  (3)  Introduction: East Asian Culture: China
EAST 212  (3)  Introduction: East Asian Culture: Japan
EAST 213  (3)  Introduction: East Asian Culture: Korea

East Asian Language

6-9 credits of East Asian language courses selected from the list below.

Note: Admission to language courses is subject to placement tests.
East Asian Literature, Culture and Society

21-24 credits of courses in East Asian Literature, Culture and Society selected from the list below. At least 6 credits must be taken at the 400 or 500 level.

East Asian Studies (EAST)

EAST 214  (3)  Japanese Animation & New Media
EAST 215  (3)  Introduction to East Asian Art
EAST 303  (3)  Current Topics: Chinese Studies 1
EAST 304  (3)  Current Topics: Chinese Studies 2
EAST 305  (3)  Current Topics: Japanese Studies 1
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structures of modernity: japan

EAST 564 (3) Structures of Modernity: Japan
EAST 569 (3) Advanced Topics: Japanese Literature
EAST 582 (3) Japanese Culture and Society

anthropology (ANTH)

ANTH 329 (3) Modern Chinese Society and Change
ANTH 331 (3) Prehistory of East Asia
ANTH 431 (3) Problems in East Asian Archaeology
ANTH 500 (3) Chinese Diversity and Diaspora

economics (ECON)

ECON 335 (3) The Japanese Economy
ECON 411 (3) Economic Development: A World Area

geography (GEOG)

GEOG 408 (3) Geography of Development
GEOG 508 (3) Resources, People and Power

history (HIST)

HIST 208 (3) Introduction to East Asian History
HIST 218 (3) Modern East Asian History
HIST 308 (3) Formation of Chinese Tradition
HIST 318 (3) History of Japan 1
HIST 328 (3) The Qing Empire
HIST 337 (3) Japanese Intellectual History 1
HIST 338 (3) Twentieth-Century China
HIST 348 (3) China: Science-Medicine-Technology
HIST 352 (3) Japanese Intellectual History 2
HIST 358 (3) Medieval to Early Modern China
HIST 359 (3) History of Japan 2
HIST 439 (3) History of Women in China
HIST 441 (3) Topics: Culture and Ritual in China
HIST 442 (3) Asian Diaspora: Chinese Overseas
HIST 443 (3) China in the Modern World
HIST 445 (3) Late Imperial China
HIST 485D1 (3) Seminar in Japanese History
HIST 485D2 (3) Seminar in Japanese History
HIST 497D1 (3) Topics in Chinese History
HIST 497D2 (3) Topics in Chinese History
HIST 579 (3) The Arts of Healing in China
HIST 581 (3) The Art of War in China
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ORGB 380 (3) Cross Cultural Management

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POLI 349 (3) Foreign Policy: Asia

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RELG 265 (3) Introductory Tibetan 2
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RELG 344 (3) Mahayana Buddhism
RELG 352 (3) Japanese Religions
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RELG 443 (3) Japanese Esoteric Buddhism
RELG 451 (3) Zen: Maxims and Methods
RELG 452 (3) East Asian Buddhism
RELG 464 (3) Advanced Tibetan 1
RELG 465 (3) Advanced Tibetan 2
RELG 549 (3) Japanese Buddhist Philosophy
RELG 557 (3) Asian Ethical Systems

3.11.13.8 Bachelor of Arts (B.A.) - Honours East Asian Studies (60 credits)
According to Faculty regulations, Honours students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.00.

Required Courses (6 credits)
Honours thesis:
EAST 498D1 (3) Honours Thesis: East Asian Studies
EAST 498D2 (3) Honours Thesis: East Asian Studies

East Asian Language (24 credits)
24 credits of an East Asian language selected from the list below.
Note: Admission to language courses is subject to placement tests.
EAST 220D1 (4.5) First Level Korean
EAST 220D2 (4.5) First Level Korean
EAST 230D1 (4.5) First Level Chinese
EAST 230D2 (4.5) First Level Chinese
EAST 240D1 (4.5) First Level Japanese
EAST 240D2 (4.5) First Level Japanese
EAST 320D1 (4.5) Second Level Korean
EAST 320D2 (4.5) Second Level Korean
EAST 330D1 (4.5) Second Level Chinese
EAST 330D2 (4.5) Second Level Chinese
EAST 340D1 (4.5) Second Level Japanese
EAST 340D2 (4.5) Second Level Japanese
EAST 420 (3) Third Level Korean 1
EAST 421 (3) Third Level Korean 2
EAST 430D1 (3) Third Level Chinese
EAST 430D2 (3) Third Level Chinese
EAST 440D1 (3) Third Level Japanese
EAST 440D2 (3) Third Level Japanese
EAST 520 (3) Fourth Level Korean 1
EAST 521 (3) Fourth Level Korean 2
EAST 530D1 (3) Fourth Level Chinese
EAST 530D2 (3) Fourth Level Chinese
EAST 533 (3) Classical Chinese 1
EAST 534 (3) Classical Chinese 2
EAST 535 (3) Chinese for Business 1
EAST 536 (3) Chinese for Business 2
EAST 537D1 (3) China Today Through Translation
EAST 537D2 (3) China Today Through Translation
EAST 540D1 (3) Fourth Level Japanese
EAST 540D2 (3) Fourth Level Japanese
EAST 543 (3) Classical Japanese 1
EAST 544 (3) Classical Japanese 2
EAST 547 (3) Advanced Translation in Japanese

East Asian Literature, Culture and Society (30 credits)
30 credits of courses in East Asian Literature, Culture and Society.
6 credits of introductory courses in East Asian Culture from:
EAST 211 (3) Introduction: East Asian Culture: China
EAST 212 (3) Introduction: East Asian Culture: Japan
EAST 213 (3) Introduction: East Asian Culture: Korea

East Asian Studies (EAST)
24 credits chosen from the list below of which at least 6 credits must be at the 400 level or above. One 400-level course must be taken before commencing the thesis.
EAST 214 (3) Japanese Animation & New Media
EAST 215 (3) Introduction to East Asian Art
EAST 303 (3) Current Topics: Chinese Studies 1
EAST 304 (3) Current Topics: Chinese Studies 2
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<td>Women Writers of China</td>
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EAST 563 (3) Images, Ideograms, Aesthetics
EAST 564 (3) Structures of Modernity: Japan
EAST 569 (3) Advanced Topics: Japanese Literature
EAST 582 (3) Japanese Culture and Society

**Anthropology (ANTH)**

ANTH 329 (3) Modern Chinese Society and Change
ANTH 331 (3) Prehistory of East Asia
ANTH 431 (3) Problems in East Asian Archaeology
ANTH 500 (3) Chinese Diversity and Diaspora

**Economics (ECON)**

ECON 335 (3) The Japanese Economy
ECON 411 (3) Economic Development: A World Area

**Geography (GEOG)**

GEOG 408 (3) Geography of Development
GEOG 508 (3) Resources, People and Power

**History (HIST)**

HIST 208 (3) Introduction to East Asian History
HIST 218 (3) Modern East Asian History
HIST 308 (3) Formation of Chinese Tradition
HIST 318 (3) History of Japan 1
HIST 328 (3) The Qing Empire
HIST 337 (3) Japanese Intellectual History 1
HIST 338 (3) Twentieth-Century China
HIST 348 (3) China: Science-Medicine-Technology
HIST 352 (3) Japanese Intellectual History 2
HIST 358 (3) Medieval to Early Modern China
HIST 359 (3) History of Japan 2
HIST 439 (3) History of Women in China
HIST 441 (3) Topics: Culture and Ritual in China
HIST 442 (3) Asian Diaspora: Chinese Overseas
HIST 443 (3) China in the Modern World
HIST 445 (3) Late Imperial China
HIST 485D1 (3) Seminar in Japanese History
HIST 485D2 (3) Seminar in Japanese History
HIST 497D1 (3) Topics in Chinese History
HIST 497D2 (3) Topics in Chinese History
HIST 579 (3) The Arts of Healing in China
HIST 581 (3) The Art of War in China
### Management (ORGB)

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### Political Science (POLI)

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### Religious Studies (RELG)

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<td>RELG 264</td>
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<td>(3)</td>
<td>Gender &amp; Sexuality in Buddhism</td>
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<td>(3)</td>
<td>Mahayana Buddhism</td>
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<td>RELG 354</td>
<td>(3)</td>
<td>Chinese Religions</td>
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<td>RELG 364</td>
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<td>Pure Land Buddhism</td>
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<td>Zen: Maxims and Methods</td>
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<td>(3)</td>
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<td>RELG 557</td>
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<td>Asian Ethical Systems</td>
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### 3.11.13.9 Bachelor of Arts (B.A.) - Joint Honours Component East Asian Studies (36 credits)

Students wishing to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

According to Faculty regulations, Joint Honours students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.00.

#### Required Courses (3 credits)

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>EAST 495D2</td>
<td>(1.5)</td>
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</table>

#### Introduction to East Asian Culture

6 credits, two of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>EAST 211</td>
<td>(3)</td>
<td>Introduction: East Asian Culture: China</td>
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<tr>
<td>EAST 212</td>
<td>(3)</td>
<td>Introduction: East Asian Culture: Japan</td>
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<tr>
<td>EAST 213</td>
<td>(3)</td>
<td>Introduction: East Asian Culture: Korea</td>
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</tbody>
</table>

#### Required Course (3 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
</table>
Complementary Courses (33 credits)
33 credits selected as specified below.

Introduction to East Asian Culture
6 credits, two of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
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<th>Description</th>
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</thead>
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<td>EAST 212</td>
<td>3</td>
<td>Introduction: East Asian Culture: Japan</td>
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<tr>
<td>EAST 213</td>
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<td>Introduction: East Asian Culture: Korea</td>
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East Asian Language
18 credits in an East Asian language above the introductory level selected from the following courses:

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<td>EAST 420</td>
<td>3</td>
<td>Third Level Korean 1</td>
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<td>EAST 421</td>
<td>3</td>
<td>Third Level Korean 2</td>
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<td>EAST 430D1</td>
<td>3</td>
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<td>EAST 430D2</td>
<td>3</td>
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<td>3</td>
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<td>3</td>
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<td>EAST 535</td>
<td>3</td>
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<td>EAST 536</td>
<td>3</td>
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<td>3</td>
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<td>Advanced Translation in Japanese</td>
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East Asian Studies (EAST)
9 credits chosen from the following East Asian Studies courses, at least 3 credits must be at the 400-level or above.

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<td>EAST 307</td>
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EAST 564 (3) Structures of Modernity: Japan
EAST 569 (3) Advanced Topics: Japanese Literature
EAST 582 (3) Japanese Culture and Society

3.11.14 Economics (ECON)

3.11.14.1 Location

Stephen Leacock Building, Room 443
855 Sherbrooke Street West
Montreal, Quebec H3A 2T7

Telephone: 514-398-4850
Fax: 514-398-4938
Email: undergraduate.economics@mcgill.ca
Website: www.mcgill.ca/economics

3.11.14.2 About Economics

For more up-to-date, detailed information about the Department and its programs, please visit our websites as follows:

U0 students interested in economics should take ECON 208 and ECON 209. These courses provide good preparation for the honours and major programs, although neither course is a prerequisite for either program. The first year of microeconomics courses for the Honours program (ECON 250D1/ECON 250D2) and for the Majors program (ECON 230D1/ECON 230D2) should not be taken in the U0 year.

Note: The Economics Honours program is offered to both B.A. and B.Com. students. All Honours students must meet with a Department Honours adviser in each year of their Honours program.

Please see the following website to access the document on credit for economics courses taken elsewhere: www.mcgill.ca/economics/undergraduates/courses. For information on Economics internships, see www.mcgill.ca/arts-internships/departments/economics.

3.11.14.3 Economics (ECON) Faculty

Chair
John Galbraith

Emeritus Professors
Antal Deutsch; B.Com.(Sir G. Wms.), Ph.D.(McG.)
George Grantham; B.A.(Antioch), Ph.D.(Yale)
Kari Levitt; B.Sc.(Lond.), M.A.(Tor.)

Professors
Robert B. Cairns; B.Sc.(Tor.), Ph.D.(MIT)
Russell Davidson; B.Sc., Ph.D.(Glas.), Ph.D.(Br. Col.) (Canada Research Chair)
Jean-Marie Dufour; B.Sc.(McG.), M.Sc.(Montr.), M.A.(Cdia.), M.A.(Chic.), Ph.D.(Chic.) (William Dow Chair in Economics)
John Galbraith; B.A.(Qu.), M.Phil., D.Phil.(Oxf.) (James McGill Professor)
Christopher Green; M.A.(Conn.), Ph.D.(Wisc.)
Jagdish Handa; B.Sc.(Lond.), Ph.D.(Johns Hop.)
**Professors**

Ngo Van Long; B.Ec.(LaT.), Ph.D.(ANU) (*James McGill Professor*)
Robin Thomas Naylor; B.A.(Tor.), M.Sc.(Lond.), Ph.D.(Cant.)
Victoria Zinde-Walsh; M.A.(Wat.), M.Sc., Ph.D.(Moscow St.)

**Associate Professors**

Francisco Alvarez-Cuadrado; B.Sc.(Pontificia Comillas), M.A., Ph.D.(Wash.)
Hassan Benchekroun; Diplôme d’ingénieur d’état(École Mohammedia des Ingénieurs, Morocco), Ph.D.(Laval)
James Engle-Warnick; B.S.(Akron), M.B.A.(Carnegie), Ph.D.(Pitts.)
Franque Grimard; B.A.(York), Ph.D.(Princ.)
C. John Kurien; B.A.(Kerala), M.A., Ph.D.(Vanderbilt)
Sonia Laszlo; B.A.(Ott.), M.A.(W. Ont.), Ph.D.(Tor.)
Daniel Parent; B.A., M.A.(Laval), Ph.D.(Montr.) (*William Dawson Scholar*)
Christopher T.S. Ragan; B.A.(Vic., BC), M.A.(Qu.), Ph.D.(MIT)
Thomas Velk; M.S., Ph.D.(Wisc.)
William Watson; B.A.(McG.), Ph.D.(Yale)
Licun Xue; B.Eng., M.Eng.(Tianjin), M.A., Ph.D.(McG.)

**Assistant Professors**

Matthieu Chemin; M.Sc. Eng.(École Centrale de Paris), M.Sc., Ph.D.(LSE)
Takashi Kunimoto; B.A.(Doshisha), M.A.(Kyoto), M.A., Ph.D.(Brown)
Markus Poschke; M.Sc.(Maastricht), M.A.(Institut d'Études Politiques, Paris), M.Res., Ph.D.(European University Institute, Italy)
Maxim Sinitsyn; B.A.(Central Methodist), M.S.(Southern Illinois), M.A., Ph.D.(N’western)
Erin Strumpf; B.A.(Smith), Ph.D.(Harv.)

**Lecturers**

Paul Dickinson
Mayssun El-Attar Vilalta
Kenneth MacKenzie

**3.11.14.4 Bachelor of Arts (B.A.) - Minor Concentration Economics (18 credits)**

The Minor Concentration Economics is offered in four streams:

**Stream I - Expandable**

**Microeconomic Theory** (3) ECON 230D1

**Stream II - Non-expandable**

**Microeconomic Theory** (3) ECON 230D2

**Stream III - for Management students**

**Stream IV - Combinable, for students already registered in the Major Concentration Economics**

In general, 200-level courses have no prerequisites, ECON 208 and ECON 209 (substitutable by the combination of MGCR 293 and ECON 295 or the more advanced course ECON 230D1/ECON 230D2 or ECON 250D1/ECON 250D2) are prerequisites for 300-level courses, ECON 230D1/ECON 230D2 or ECON 250D1/ECON 250D2 are prerequisites for 400-level courses.

**Stream I - Required Courses (6 credits)**

This stream is for students whose primary interest is in a field other than Economics, but who wish to keep the option of upgrading to the Major concentration in the future.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 230D1</td>
<td>3</td>
<td>Microeconomic Theory</td>
</tr>
<tr>
<td>ECON 230D2</td>
<td>3</td>
<td>Microeconomic Theory</td>
</tr>
</tbody>
</table>
Stream I - Complementary Courses (12 credits)
12 credits of courses with the Economics subject code ECON with numbers above 209. At least 6 of these credits must be in 300- or 400-level courses.

Stream II - Required Courses (6 credits)
Note: Stream II of the Minor Concentration Economics may not be expanded to the Major Concentration Economics.
ECON 208 (3) Microeconomic Analysis and Applications
ECON 209 (3) Macroeconomic Analysis and Applications

Stream II - Complementary Courses (12 credits)
12 credits of courses with the Economics subject code ECON with numbers above 209. At least 6 of these credits must be in 300- or 400-level courses.

Stream III - Complementary Courses (18 credits)
Stream III is available only to Management students.
18 credits of courses with the Economics subject code ECON with numbers above 209. At least 6 of these credits must be in 300- or 400-level courses.
Note: ECON 295 will not count as part of this Minor concentration.

Stream IV - Complementary Courses (18 credits)
Students who are registered in the Major Concentration Economics and a minor concentration in another unit may complete as a second minor concentration the Minor Concentration Economics. Please see the Faculty of Arts regulations for "Faculty Degree Requirements", "About Program Requirements", and "Departmental Programs" for detailed information on the multi-track system options.
18 credits of courses with the Economics subject code ECON with numbers above 209. At least 6 of these credits must be in 400- or 500-level courses and no more than 3 credits may be at the 200 level.

3.11.14.5 Bachelor of Arts (B.A.) - Major Concentration Economics (36 credits)
The Major Concentration Economics is a planned sequence of courses designed to permit the student a degree of specialization in economics. It consists of 36 credits in courses approved by the Economics Department.
All students who wish to begin (or continue) the Major Concentration Economics should see a majors adviser in the Department of Economics in each of their university years. Further information may be obtained from the Department's website, or from any major adviser; consult the Departmental office for a list of advisers.
Students who are registering for the first time with the Department should attend the orientation meeting (check the website for details) before seeing an adviser.
A student choosing the Major Concentration Economics must take 36 credits in Economics. The Economics courses will normally be taken at McGill and will be selected from the courses shown below. Major Concentration Economics students entering University at the U1 year in September should directly proceed to ECON 230D1/ECON 230D2 without taking ECON 208 and ECON 209.
Students who wish to switch from the Major concentration to Honours Economics must complete all the requirements of the Honours program.

Required Courses (18 credits)
Please note that all students taking the Major Concentration Economics (whether in the B.A. or B.Com.) must take 6 credits of approved statistics courses. Please refer to the Department's document "Rules on Stats Courses for Economics Students" available at: http://www.mcgill.ca/economics/undergraduates/courses/.
Mathematics: Mastery of high school mathematics is required for all economics courses. For majors and minors in Economics, it is recommended, but not required, that students acquire mastery of elementary Calculus and matrix algebra in their undergraduate years. (See courses listed under the Honours program.)
ECON 227D1 (3) Economic Statistics
ECON 227D2 (3) Economic Statistics
ECON 230D1 (3) Microeconomic Theory
ECON 230D2 (3) Microeconomic Theory
ECON 330D1 (3) Macroeconomic Theory
ECON 330D2 (3) Macroeconomic Theory
Complementary Courses (18 credits)

18 credits in Economics selected from other 200- (with numbers above 209), 300-, 400- and 500-level courses. At least 6 of these credits must be in 400- or 500-level courses. No more than 6 credits may be at the 200 level.

Prerequisites: In general, 200-level courses have no prerequisites; 300-level courses have ECON 230D1/ECON 230D2 (or the lower level courses ECON 208 and ECON 209, or the combination of MGCR 293 and ECON 295) as prerequisites; and 400-level courses have ECON 230D1/ECON 230D2 as a prerequisite.

3.11.14.6 Bachelor of Arts (B.A.) - Honours Economics (42 credits)

The Honours Economics program (B.A. and B.Com.) consists of 30 specified credits of Honours courses and a further 12 credits of approved Economics courses. Honours students are also required to complete prerequisite Math courses in basic Calculus and linear algebra.

All Honours students should consult the handout describing the Honours and Joint Honours programs available in the Economics Department Office, Leacock Building Rm. 443, and at: http://www.mcgill.ca/economics/undergraduates/honours.

Normally, to be awarded an Honours degree, a student must obtain a 3.00 program GPA in the required and complementary credits in Economics, and a CGPA of 3.00. For a First Class Honours degree, the minimum requirements are normally a 3.50 program GPA in the required and complementary credits in Economics, and a CGPA of 3.50.

Required Math Prerequisites

All Honours students must complete three Math prerequisites. A sequence of two Calculus courses with a grade of C or higher should be completed prior to entering the Honours program. Prior to their U2 year, students should complete MATH 133. These requirements can be met by having passed equivalent courses at CEGEP or elsewhere. Honours students are encouraged, but not required, to take MATH 222 Calculus 3.

* Note: Students without high school Calculus take MATH 139; those with high school Calculus take MATH 140.

- MATH 133 (3) Linear Algebra and Geometry
- MATH 139* (4) Calculus 1 with Precalculus
- MATH 140* (3) Calculus 1
- MATH 141 (4) Calculus 2

Required Courses (27 credits)


Students who have taken an equivalent statistics course prior to entering the program may be waived from the ECON 257D1/ECON 257D2 requirement. These students will normally be required to take MATH 222 Calculus 3 in addition to ECON 468.

Normally, ECON 250D1/ECON 250D2 is taken in the U1 year, ECON 352D1/ECON 352D2 in U2, and ECON 450D1/ ECON 450D2 in U3. ECON 257D1/ECON 257D2 can be taken in U1 or U2; and ECON 468 can be taken in U2 or U3.

- ECON 250D1 (3) Introduction to Economic Theory: Honours
- ECON 250D2 (3) Introduction to Economic Theory: Honours
- ECON 257D1 (3) Economic Statistics - Honours
- ECON 257D2 (3) Economic Statistics - Honours
- ECON 352D1 (3) Macroeconomics - Honours
- ECON 352D2 (3) Macroeconomics - Honours
- ECON 450D1 (3) Advanced Economic Theory - Honours
- ECON 450D2 (3) Advanced Economic Theory - Honours
- ECON 468 (3) Econometrics 1 - Honours

Complementary Courses (15 credits)

Complementary courses are usually taken in U2 or U3.

3 credits from:

- ECON 460 (3) History of Thought 1 - Honours
12 credits of Economics courses at the 300, 400, or 500 level, approved by an Honours adviser. Normally at least 9 of the 12 will be at the 400 or 500 level. (Note: Honours students are not permitted to register for general Economics courses where an Honours course in the same field is offered.)

3.11.14.7 Bachelor of Arts (B.A.) - Joint Honours Component Economics (30 credits)

Students wishing to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable) in each year of their program.

All Joint Honours students should consult the handout describing the Economics Honours and Joint Honours programs available in the Economics Department Office, Leacock Building Room 443, and at http://www.mcgill.ca/economics/undergraduates/honours.

According to Faculty of Arts regulations, Joint Honours students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.00.

Required Math Prerequisites

All Joint Honours students must complete three Math prerequisites. A sequence of two calculus courses with a grade of C or higher should be completed prior to entering the Joint Honours program. Prior to their U2 year, students should complete MATH 133. These requirements can be met by having passed equivalent courses at CEGEP or elsewhere. Joint Honours students are encouraged, but not required, to take MATH 222 Calculus 3.

* Note: Students without high school Calculus take MATH 139; those with high school Calculus take MATH 140.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 133</td>
<td>(3)</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>MATH 139*</td>
<td>(4)</td>
<td>Calculus 1 with Precalculus</td>
</tr>
<tr>
<td>MATH 140*</td>
<td>(3)</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 141</td>
<td>(4)</td>
<td>Calculus 2</td>
</tr>
</tbody>
</table>

Required Courses (27 credits)


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<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 250D1</td>
<td>(3)</td>
<td>Introduction to Economic Theory: Honours</td>
</tr>
<tr>
<td>ECON 250D2</td>
<td>(3)</td>
<td>Introduction to Economic Theory: Honours</td>
</tr>
<tr>
<td>ECON 257D1</td>
<td>(3)</td>
<td>Economic Statistics - Honours</td>
</tr>
<tr>
<td>ECON 257D2</td>
<td>(3)</td>
<td>Economic Statistics - Honours</td>
</tr>
<tr>
<td>ECON 352D1</td>
<td>(3)</td>
<td>Macroeconomics - Honours</td>
</tr>
<tr>
<td>ECON 352D2</td>
<td>(3)</td>
<td>Macroeconomics - Honours</td>
</tr>
<tr>
<td>ECON 450D1</td>
<td>(3)</td>
<td>Advanced Economic Theory - Honours</td>
</tr>
<tr>
<td>ECON 450D2</td>
<td>(3)</td>
<td>Advanced Economic Theory - Honours</td>
</tr>
<tr>
<td>ECON 468</td>
<td>(3)</td>
<td>Econometrics 1 - Honours</td>
</tr>
</tbody>
</table>

Complementary Course (3 credits)

3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 460</td>
<td>(3)</td>
<td>History of Thought 1 - Honours</td>
</tr>
<tr>
<td>ECON 461</td>
<td>(3)</td>
<td>History of Thought 2 - Honours</td>
</tr>
<tr>
<td>ECON 469</td>
<td>(3)</td>
<td>Econometrics 2 - Honours</td>
</tr>
</tbody>
</table>
Bachelor of Arts (B.A.) - Joint Honours Component Economics / Joint Honours Component Accounting (60 credits)

The B.A. Joint Honours Component Economics / Joint Honours Component Accounting program is offered with the Desautels Faculty of Management and is commonly referred to as the Joint Honours in Economics and Accounting.

Students in this Joint Honours program should see an Economics adviser and a Management adviser.

All Joint Honours students should consult the handout describing the Economics Honours and Joint Honours programs available in the Economics Department Office, 443 Leacock Building, and at http://www.mcgill.ca/economics/undergraduates/honours.

According to Faculty of Arts regulations, Joint Honours students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.00.

Required Math Prerequisites

All Joint Honours students must complete three Math prerequisites. A sequence of two calculus courses with a grade of C or higher should be completed prior to entering the Joint Honours program. Prior to their U2 year, students should complete MATH 133. These requirements can be met by having passed equivalent courses at CEGEP or elsewhere. Joint Honours students are encouraged, but not required, to take MATH 222 Calculus 3.

* Note: Students without high school calculus take MATH 139; those with high school calculus take MATH 140.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>MATH 139*</td>
<td>4</td>
<td>Calculus 1 with Precalculus</td>
</tr>
<tr>
<td>MATH 140*</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
</tbody>
</table>

Joint Honours Component Economics Requirements

Questions about the requirements for the 30-credit Economics component of this Joint Honours program should be directed to the Honours program adviser in the Department of Economics.

Economics - Required Courses (27 credits)

Please refer to the Department's document "Rules on Stats Courses for Economics Students" available on the following website:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 250D1</td>
<td>3</td>
<td>Introduction to Economic Theory: Honours</td>
</tr>
<tr>
<td>ECON 250D2</td>
<td>3</td>
<td>Introduction to Economic Theory: Honours</td>
</tr>
<tr>
<td>ECON 257D1</td>
<td>3</td>
<td>Economic Statistics - Honours</td>
</tr>
<tr>
<td>ECON 257D2</td>
<td>3</td>
<td>Economic Statistics - Honours</td>
</tr>
<tr>
<td>ECON 352D1</td>
<td>3</td>
<td>Macroeconomics - Honours</td>
</tr>
<tr>
<td>ECON 352D2</td>
<td>3</td>
<td>Macroeconomics - Honours</td>
</tr>
<tr>
<td>ECON 450D1</td>
<td>3</td>
<td>Advanced Economic Theory - Honours</td>
</tr>
<tr>
<td>ECON 450D2</td>
<td>3</td>
<td>Advanced Economic Theory - Honours</td>
</tr>
<tr>
<td>ECON 468</td>
<td>3</td>
<td>Econometrics 1 - Honours</td>
</tr>
</tbody>
</table>

Economics - Complementary Courses (3 credits)

3 credits selected from the following Economics courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 460</td>
<td>3</td>
<td>History of Thought 1 - Honours</td>
</tr>
<tr>
<td>ECON 461</td>
<td>3</td>
<td>History of Thought 2 - Honours</td>
</tr>
<tr>
<td>ECON 469</td>
<td>3</td>
<td>Econometrics 2 - Honours</td>
</tr>
</tbody>
</table>

Joint Honours Component Accounting Requirements

Questions about the requirements for the 30-credit Accounting component of this Joint Honours program should be directed to the Honours program adviser in the Desautels Faculty of Management.

Accounting - Required Courses (18 credits)
ACCT 351 (3) Intermediate Financial Accounting 1
ACCT 352 (3) Intermediate Financial Accounting 2
ACCT 361 (3) Intermediate Management Accounting 1
ACCT 455 (3) Development of Accounting Thought
MGCR 211 (3) Introduction to Financial Accounting
MGCR 341 (3) Finance 1

**Accounting - Complementary Courses (12 credits)**
12 credits of Accounting courses selected from:

ACCT 354 (3) Financial Statement Analysis
ACCT 362 (3) Intermediate Management Accounting 2
ACCT 385 (3) Principles of Taxation
ACCT 452 (3) Financial Reporting Valuation
ACCT 453 (3) Advanced Financial Accounting
ACCT 463 (3) Advanced Management Accounting
ACCT 475 (3) Principles of Auditing
ACCT 486 (3) Business Taxation 2

### 3.11.14.9 Bachelor of Arts (B.A.) - Joint Honours Component Economics / Joint Honours Component Finance (60 credits)

The B.A. Joint Honours Component Economics and Joint Honours Component Finance program is offered with the Desautels Faculty of Management and is commonly referred to as the Joint Honours in Economics and Finance.

Students in this Joint Honours program should see an Economics adviser and a Management adviser.


According to Faculty of Arts regulations, Joint Honours students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.00.

#### Required Math Prerequisites

All Joint Honours students must complete three Math prerequisites. A sequence of two calculus courses with a grade of C or higher should be completed prior to entering the Joint Honours program. Prior to their U2 year, students should complete MATH 133. These requirements can be met by having passed equivalent courses at CEGEP or elsewhere. Joint Honours students are encouraged, but not required, to take MATH 222 Calculus 3.

* Note: Students without high school calculus take MATH 139; those with high school calculus take MATH 140.

- MATH 133 (3) Linear Algebra and Geometry
- MATH 139* (4) Calculus 1 with Precalculus
- MATH 140* (3) Calculus 1
- MATH 141 (4) Calculus 2

#### Joint Honours Component Economics Requirements

Questions about the requirements for the 30-credit Economics component of this Joint Honours program should be directed to the Honours program adviser in the Department of Economics.

**Economics - Required Courses (27 credits)**


- ECON 250D1 (3) Introduction to Economic Theory: Honours
- ECON 250D2 (3) Introduction to Economic Theory: Honours
- ECON 257D1 (3) Economic Statistics - Honours
ECON 257D2 (3) Economic Statistics - Honours
ECON 352D1 (3) Macroeconomics - Honours
ECON 352D2 (3) Macroeconomics - Honours
ECON 450D1 (3) Advanced Economic Theory - Honours
ECON 450D2 (3) Advanced Economic Theory - Honours
ECON 468 (3) Econometrics 1 - Honours

**Economics - Complementary Courses (3 credits)**

3 credits selected from the following Economics courses:

ECON 460 (3) History of Thought 1 - Honours
ECON 461 (3) History of Thought 2 - Honours
ECON 469 (3) Econometrics 2 - Honours

**Joint Honours Component Finance Requirements**

Questions about the requirements for the 30-credit Finance component of this Joint Honours program should be directed to the Honours program adviser in the Desautels Faculty of Management.

**Finance - Required Courses (18 credits)**

FINE 342 (3) Finance 2
FINE 441 (3) Investment Management
FINE 443 (3) Applied Corporate Finance
FINE 547 (3) Advanced Finance Seminar
MGCR 211 (3) Introduction to Financial Accounting
MGCR 341 (3) Finance 1

**Finance - Complementary Courses (12 credits)**

12 credits of Finance courses selected from:

FINE 434 (3) Topics in Finance 1
FINE 448 (3) Financial Derivatives
FINE 449 (3) Market Risk Models
FINE 451 (3) Fixed Income Analysis
FINE 482 (3) International Finance 1
FINE 492 (3) International Finance 2
FINE 541D1 (1.5) Applied Investments
FINE 541D2 (1.5) Applied Investments

**3.11.14.10 Standing in Honours and Joint Honours Programs**

Normally, to be awarded an Honours degree, a student must obtain a 3.00 program GPA in the required and complementary credits in Economics, and a CGPA of 3.00. For a First Class Honours degree, the minimum requirements are normally a 3.50 program GPA in the required and complementary credits in Economics, and a CGPA of 3.50. For additional requirements for the B.Com. Honours in Economics, Joint Honours in Economics and Finance, and Joint Honours in Economics and Accounting, consult the Desautels Faculty of Management section of this publication for their program grade and GPA requirements. In particular, these programs also require a minimum grade of B- in all Management courses.
3.11.14.11 Economics (ECON) Related Programs

3.11.14.1.1 Minors in Management

Economics students can also do one of the four minors offered by the Desautels Faculty of Management for non-Management students. Refer to the Desautels Faculty of Management section of this publication for detailed information about program requirements and applying.

Finance for Non-Management Students; see Desautels Faculty of Management > section 9.9.7.1: Minor Finance (For Non-Management Students) (18 credits).

Management for Non-Management Students; see Desautels Faculty of Management > section 9.9.7.2: Minor Management (For Non-Management Students) (18 credits).

Marketing for Non-Management Students; see Desautels Faculty of Management > section 9.9.7.6: Minor Marketing (For Non-Management Students) (18 credits).

Operations Management for Non-Management Students; see Desautels Faculty of Management > section 9.9.7.7: Minor Operations Management (For Non-Management Students) (18 credits).

3.11.15 Education for Arts Students Minor Concentration

3.11.15.1 Location

Student Affairs Office
Faculty of Education
3700 McTavish Street
Montreal, Quebec H3A 1Y2

Email: sao.education@mcgill.ca
Website: www.mcgill.ca/edu-sao/new/programs/minorseducation

3.11.15.2 About Education for Arts Students Minor Concentration

This Minor concentration allows Arts students to develop and explore an interest in education. It will give students a solid footing in the basics of pedagogy and may provide a starting point towards a B.Ed. degree.

Completion of the Minor concentration does not qualify a student for certification to teach in the province of Quebec. Students interested in a teaching career should consult the Faculty of Education > Overview of Faculty Programs.

3.11.15.3 Bachelor of Arts (B.A.) - Minor Concentration Education for Arts Students (18 credits)

This Minor concentration allows Arts students to develop and explore an interest in education. It will give students a solid footing in the basics of pedagogy and may provide a starting point towards a B.Ed. degree.

Completion of this Minor concentration DOES NOT qualify a student to enter the teaching profession. Students interested in a teaching career should consult the Faculty of Education section of this publication for information about Bachelor of Education programs that lead to teacher certification. See Faculty of Education programs offered by the Department of Integrated Studies in Education.

Students should consult the Faculty of Arts section on "Faculty Degree Requirements", and "Course Requirements" for information on "Courses Outside the Faculties of Arts and of Science" and other topics such as course restrictions, credit counting, etc.

Required Course (3 credits)

EDPE 300 (3) Educational Psychology

Complementary Courses (15 credits)

Group A

9 credits selected as follows:

3 credits, one of:
EDEC 260 (3) Philosophical Foundations
EDEC 261 (3) Philosophy of Catholic Education
3 credits, one of:

- EDEC 233 (3) First Nations and Inuit Education
- EDEC 248 (3) Multicultural Education

3 credits, one of:

- EDEC 247 (3) Policy Issues in Quebec Education
- EDEM 220 (3) Contemporary Issues in Education

**Group B**

6 credits to be chosen from the following list:

* Note: Either EDES 335 or EDES 353 may be taken but not both.

- EDEC 262 (3) Media, Technology and Education
- EDES 335* (3) Teaching Secondary Science 1
- EDES 353* (3) Teaching Secondary Mathematics 1
- EDPE 304 (3) Measurement and Evaluation
- EDPI 309 (3) Exceptional Students

### 3.11.16 Educational Psychology Minor Concentration

#### 3.11.16.1 Location

**Program Director**

Professor Susanne P. Lajoie  
Department of Educational and Counselling Psychology  
Faculty of Education  
3700 McTavish Street, Room 614  
Telephone: 514-398-4248

**Program Coordinator**

Mr. Dean Thomson  
Department of Educational and Counselling Psychology  
Faculty of Education  
3700 McTavish Street, Room 614  
Telephone: 514-398-4248

Fax: 514-398-6968  
Website: [www.mcgill.ca/edu-ecp](http://www.mcgill.ca/edu-ecp)

#### 3.11.16.2 About the Educational Psychology Minor Concentration

Educational Psychology encompasses: (a) the theoretical and applied study of learning, cognition, and instruction in a variety of educational settings across ages and domains; (b) instructional technology and computers as cognitive tools in learning; (c) cognitive and social processes in learning; (d) evaluation and enhancement of learning and teaching; (e) methods of fostering inclusive education; (f) relationships of phenomena related to teaching, learning, and assessment in human development; and (g) the impact of family and community on children’s learning and development.

For further information, see Faculty of Education > Department of Educational and Counselling Psychology.
3.11.16.3 Bachelor of Arts (B.A.) - Minor Concentration Educational Psychology (18 credits)

Completion of this Minor concentration DOES NOT qualify a student to enter the teaching profession. Students interested in a teaching career should consult the Faculty of Education section of this publication for information about Bachelor of Education programs that lead to teacher certification. See Faculty of Education programs offered by the Department of Integrated Studies in Education.

Respecting Faculty of Arts Multi-track System regulations, students registering for the Major Concentration Psychology and the Minor Concentration Educational Psychology must complete an additional minor concentration in Arts in a unit other than Psychology.

Students should consult the Faculty of Arts sections on "Faculty Degree Requirements", "Program Requirements", and "Departmental Programs" for information on the "Multi-track System" and "Course Requirements" for information on "Courses Outside the Faculties of Arts and of Science" and other topics such as course restrictions, credit counting, etc.

Required Course (3 credits)

This required course has a prerequisite of an introductory course in psychology taken at either CEGEP or university level (e.g., PSYC 100 or EDPE 300). Students who do not have this prerequisite prior to entry into the program may take either PSYC 100 or EDPE 300. EDPE 300 may count as one of the complementary courses for the Minor concentration.

EDPE 335  (3)  Instructional Psychology

Complementary Courses (15 credits)

15 credits to be selected as follows:

3 credits to be taken near the end of program completion, one of:

Note: Students with a background in psychology should normally select EDPE 355. EDPE 355 has a prerequisite, either PSYC 231 or permission of the instructor.

EDPE 355  (3)  Cognition and Education
EDPE 555  (3)  Applied Cognitive Science

12 credits selected from the following list:

* Note: Students may not receive credit for both EDPE 208 and PSYC 304. EDPE 208 is not open to students registered in a major or minor concentration in Psychology.

EDPE 208*  (3)  Personality and Social Development
EDPE 304  (3)  Measurement and Evaluation
EDPE 355  (3)  Cognition and Education
EDPE 377  (3)  Adolescence and Education
EDPE 510  (3)  Learning and Technology
EDPE 515  (3)  Gender Identity Development
EDPE 535  (3)  Instructional Design
EDPE 555  (3)  Applied Cognitive Science
EDPI 309  (3)  Exceptional Students
EDPI 526  (3)  Talented and Gifted Students
EDPI 527  (3)  Creativity and its Cultivation
EDPI 543  (3)  Family, School and Community

3.11.17  English (ENGL)

3.11.17.1 Location

Arts Building, Room 155
853 Sherbrooke Street West
Montreal, Quebec H3A 2T6
The Department of English offers a wide variety of courses covering three linked and overlapping areas: literature written in English; drama, including both courses in dramatic literature and courses that introduce the student to the basic elements of theatrical performance; and cultural studies, including analysis of a variety of visual and verbal media. These three areas are integrally related, and all students in English Department programs are invited to do work in all three, while concentrating in one of them.

Note: Students intending to apply for Honours or already accepted should consult an Honours adviser regarding their course selections throughout their program.

For the most up-to-date information on Department requirements and detailed course descriptions, see the English Department Handbook at www.mcgill.ca/english.

DESA is the representative body for the students of the English Department at McGill. Any student taking one or more courses in the Department is automatically a member. For more information, please read the description on the Department's website.

Chair

P. Yachnin

Emeritus Professors

M. Bristol; B.A.(Yale), Ph.D.(Princ.)
K. McSweeney; B.A., Ph.D.(Tor.)
P. Ohlin; Fil. Mag.(Stockholm), M.A., Ph.D. (N. Mexico)
M. Puhvel; B.A., M.A.(McG.), Ph.D.(Harv.)
J. Ripley; B.A., M.A.(New Br.), Ph.D.(Birm.)
D. Suvin; B.A., M.Sc., Ph.D.(Zagreb), F.R.S.C.
W.C. Wees; B.A.(N’western), M.A.(Roch.), Ph.D.(N’western)
D. Williams; B.A.(Boston), M.A., Ph.D.(Tor.)

Professors

K. Borris; B.A.(Vic., BC), Ph.D.(Edin.)
M.N. Cooke; B.A.(Qu.), M.A.(C’nell), M.A., Ph.D.(Tor.)
A. Hepburn; B.A., M.A.(W. Ont.), Ph.D.(Princ.)
M.A. Kilgour; B.A.(Tor.), Ph.D.(Yale) (Molson Professor of English)
R. Lecker; B.A., M.A., Ph.D.(York) (Greenshields Professor of English)
P. Sabor; B.A.(Camb.), M.A.(Qu.), Ph.D.(Lond.) (Canada Research Chair in 18th Century Studies)
M. Stenback; B.A.(Copen.), M.A., Ph.D.(Montr.)
B. Trehearne; B.A., M.A., Ph.D.(McG.)
P. Yachnin; B.A.(McG.), M.Litt.(Edin.), Ph.D.(Tor.) (Tomlinson Chair in Shakespeare Studies)

Associate Professors

D.A. Bray; B.A.(McG.), Ph.D.(Edin.)
S. Carney; B.A.(Manit.), M.A.(Alta.), Ph.D.(York)
### Associate Professors

T.W. Folkerth; B.A.(CSU Chico), M.A., Ph.D.(McG.)

J. Fumo; B.A.(Mass.), M.A., Ph.D.(Princ.)

P. Gibian; B.A.(Yale), M.A.(NYU), M.A., Ph.D.(Stan.)

Y. Halevi-Wise; B.A.(Hebrew), M.A.(G’town), Ph.D.(Princ.)

D.C. Hensley; B.A., M.A.(Cant.), B.A., Ph.D.(Yale)

M. Hickman; B.A.(Brown), M.A., Ph.D.(Mich.)

E. Hurley; B.A.(McG.), A.M.(Brown), Ph.D.(CUNY)

B. Kaite; B.A.(Cdia), M.A.(McM.), Ph.D.(Carl.)

T. Mole; B.A., M.A., Ph.D.(Brist.)

M. Morgan; B.A.(Harv.), Ph.D.(Stan.)

P. Neilson; B.A.(Bishop’s), M.F.A.(Calg.)

D. Nystrom; B.A.(Wisc.), M.A.(Virg.), Ph.D.(Virg., Charlottesville)

T. Ponech; B.A.(McG.), Ph.D.(N’western)

D. Salter; B.A.(Br. Col.), M.A., Ph.D.(Tor.)

E. Schantz; B.A.(Stan.), M.A., Ph.D.(USC)

M.W. Selkirk; B.A.(Alta.), M.F.A.(Ill.)

T. Sparks; B.A.(Bates College), M.A., Ph.D.(Wash.)

### Assistant Professors

T. Heise; B.A.(Flor. St.), M.A.(Calif., Davis), Ph.D.(NYU)

A. Osterweil; B.A., M.A.(NYU), Ph.D.(Calif., Berk.)

M. Popescu; B.A., M.A.(Bucharest), Ph.D.(Windsor), Ph.D.(Penn.)

F. Ritchie; B.A., M.A.(Durh.), Ph.D.(Lond.)

A. Thain; B.A.(McG.), Ph.D.(Duke)

M. Van Dussen; B.A.(Ohio Wesleyan), M.A., Ph.D.(Ohio St.)

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#### 3.11.17.6 Bachelor of Arts (B.A.) - Minor Concentration English - Literature (18 credits)

The Minor Concentration English - Literature may be expanded to the Major Concentration English - Literature.

For the most up-to-date information on Department requirements and detailed course descriptions, please see the English Department Handbook at http://www.mcgill.ca/english/.

### Required Courses (6 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 202</td>
<td>(3)</td>
<td>Departmental Survey of English Literature 1</td>
</tr>
<tr>
<td>ENGL 203</td>
<td>(3)</td>
<td>Departmental Survey of English Literature 2</td>
</tr>
</tbody>
</table>

### Complementary Courses (12 credits)

12 credits selected as described below.

Note on Topics Courses: The Department of English offers courses which change topic from academic year to academic year. Depending on the topic in a specific year, these courses may count toward different program requirements. At the time they register for a topics course, students should confirm with their program adviser the program requirement it fulfills for that academic year.

### Major Author

3 credits on a Major Author:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 315</td>
<td>(3)</td>
<td>Shakespeare</td>
</tr>
<tr>
<td>Course Code</td>
<td>Credits</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
<td>--------------</td>
</tr>
<tr>
<td>ENGL 316</td>
<td>3</td>
<td>Milton</td>
</tr>
<tr>
<td>ENGL 357</td>
<td>3</td>
<td>Chaucer - Canterbury Tales</td>
</tr>
<tr>
<td>ENGL 409</td>
<td>3</td>
<td>Studies in a Canadian Author</td>
</tr>
<tr>
<td>ENGL 416</td>
<td>3</td>
<td>Studies in Shakespeare</td>
</tr>
<tr>
<td>ENGL 417</td>
<td>3</td>
<td>A Major English Poet</td>
</tr>
<tr>
<td>ENGL 418</td>
<td>3</td>
<td>A Major Modernist Writer</td>
</tr>
</tbody>
</table>

**Pre-1800**

3 credits from a list of pre-1800 literature courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 215</td>
<td>3</td>
<td>Introduction to Shakespeare</td>
</tr>
<tr>
<td>ENGL 301</td>
<td>3</td>
<td>Earlier 18th Century Novel</td>
</tr>
<tr>
<td>ENGL 302</td>
<td>3</td>
<td>Restoration and 18th C. English Literature 1</td>
</tr>
<tr>
<td>ENGL 303</td>
<td>3</td>
<td>Restoration and 18th C. English Literature 2</td>
</tr>
<tr>
<td>ENGL 304</td>
<td>3</td>
<td>Later Eighteenth Century Novel</td>
</tr>
<tr>
<td>ENGL 305</td>
<td>3</td>
<td>Renaissance English Literature 1</td>
</tr>
<tr>
<td>ENGL 307</td>
<td>3</td>
<td>Renaissance English Literature 2</td>
</tr>
<tr>
<td>ENGL 308</td>
<td>3</td>
<td>English Renaissance Drama 1</td>
</tr>
<tr>
<td>ENGL 309</td>
<td>3</td>
<td>English Renaissance Drama 2</td>
</tr>
<tr>
<td>ENGL 315</td>
<td>3</td>
<td>Shakespeare</td>
</tr>
<tr>
<td>ENGL 316</td>
<td>3</td>
<td>Milton</td>
</tr>
<tr>
<td>ENGL 340</td>
<td>3</td>
<td>History of the English Language</td>
</tr>
<tr>
<td>ENGL 342</td>
<td>3</td>
<td>Introduction to Old English</td>
</tr>
<tr>
<td>ENGL 347</td>
<td>3</td>
<td>Great Writings of Europe 1</td>
</tr>
<tr>
<td>ENGL 348</td>
<td>3</td>
<td>Great Writings of Europe 2</td>
</tr>
<tr>
<td>ENGL 349</td>
<td>3</td>
<td>English Literature and Folklore 1</td>
</tr>
<tr>
<td>ENGL 356</td>
<td>3</td>
<td>Middle English</td>
</tr>
<tr>
<td>ENGL 357</td>
<td>3</td>
<td>Chaucer - Canterbury Tales</td>
</tr>
<tr>
<td>ENGL 358</td>
<td>3</td>
<td>Chaucer - Troilus and Criseyde</td>
</tr>
<tr>
<td>ENGL 400</td>
<td>3</td>
<td>Earlier English Renaissance</td>
</tr>
<tr>
<td>ENGL 401</td>
<td>3</td>
<td>Studies in the 17th Century</td>
</tr>
<tr>
<td>ENGL 403</td>
<td>3</td>
<td>Studies in the 18th Century</td>
</tr>
<tr>
<td>ENGL 416</td>
<td>3</td>
<td>Studies in Shakespeare</td>
</tr>
<tr>
<td>ENGL 452</td>
<td>3</td>
<td>Studies in Old English</td>
</tr>
<tr>
<td>ENGL 456</td>
<td>3</td>
<td>Middle English</td>
</tr>
</tbody>
</table>

**Additional Literature**

6 additional credits from ENGL offerings in Literature which includes all the courses specifically listed in the Literature categories for the Major Concentration in English - Literature program and the courses listed below. Any ENGL course not on these Literature lists, such as courses in Cultural Studies, may not count.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 199</td>
<td>3</td>
<td>FYS: Literature and Democracy</td>
</tr>
<tr>
<td>ENGL 204</td>
<td>3</td>
<td>English Literature and the Bible</td>
</tr>
<tr>
<td>ENGL 237</td>
<td>3</td>
<td>Introduction to Study of a Literary Form</td>
</tr>
<tr>
<td>ENGL 238</td>
<td>3</td>
<td>Comedy</td>
</tr>
<tr>
<td>Course Code</td>
<td>Credits</td>
<td>Course Title</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>ENGL 297</td>
<td>(3)</td>
<td>Special Topics of Literary Study</td>
</tr>
<tr>
<td>ENGL 321</td>
<td>(3)</td>
<td>Caribbean Fiction</td>
</tr>
<tr>
<td>ENGL 338</td>
<td>(3)</td>
<td>Short Story</td>
</tr>
<tr>
<td>ENGL 343</td>
<td>(3)</td>
<td>Literature and Science 1</td>
</tr>
<tr>
<td>ENGL 345</td>
<td>(3)</td>
<td>Literature and Society</td>
</tr>
<tr>
<td>ENGL 353</td>
<td>(3)</td>
<td>Interdisciplinary Approaches to Literary Research</td>
</tr>
<tr>
<td>ENGL 354</td>
<td>(3)</td>
<td>Sexuality and Representation</td>
</tr>
<tr>
<td>ENGL 364</td>
<td>(3)</td>
<td>Creative Writing: Fiction 2</td>
</tr>
<tr>
<td>ENGL 369</td>
<td>(3)</td>
<td>Creative Writing: Playwriting</td>
</tr>
<tr>
<td>ENGL 385</td>
<td>(3)</td>
<td>Topics in Literature and Film</td>
</tr>
<tr>
<td>ENGL 394</td>
<td>(3)</td>
<td>Popular Literary Forms</td>
</tr>
<tr>
<td>ENGL 421</td>
<td>(3)</td>
<td>African Literature</td>
</tr>
<tr>
<td>ENGL 424</td>
<td>(3)</td>
<td>Irish Literature</td>
</tr>
<tr>
<td>ENGL 437</td>
<td>(3)</td>
<td>Studies in Literary Form</td>
</tr>
<tr>
<td>ENGL 438</td>
<td>(3)</td>
<td>Studies in Literary Form</td>
</tr>
<tr>
<td>ENGL 440</td>
<td>(3)</td>
<td>First Nations and Inuit Literature and Media</td>
</tr>
<tr>
<td>ENGL 447</td>
<td>(3)</td>
<td>Crosscurrents/English Literature and European Literature 1</td>
</tr>
<tr>
<td>ENGL 464</td>
<td>(3)</td>
<td>Creative Writing: Poetry</td>
</tr>
</tbody>
</table>

### 3.11.17.7 Bachelor of Arts (B.A.) - Minor Concentration English - Drama and Theatre (18 credits)

The Minor Concentration English - Drama and Theatre may be expanded to the Major Concentration English - Drama and Theatre.

For the most up-to-date information on Department requirements and detailed course descriptions, please see the English Department Handbook at http://www.mcgill.ca/english/.

#### Required Courses (6 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 230</td>
<td>(3)</td>
<td>Introduction to Theatre Studies</td>
</tr>
<tr>
<td>ENGL 269</td>
<td>(3)</td>
<td>Introduction to Performance</td>
</tr>
</tbody>
</table>

#### Complementary Courses (12 credits)

12 credits selected as described below.

#### Theatre History Courses

3 credits from a list of courses in Theatre History:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 306</td>
<td>(3)</td>
<td>Theatre History: Medieval and Early Modern</td>
</tr>
<tr>
<td>ENGL 308</td>
<td>(3)</td>
<td>English Renaissance Drama 1</td>
</tr>
<tr>
<td>ENGL 309</td>
<td>(3)</td>
<td>English Renaissance Drama 2</td>
</tr>
<tr>
<td>ENGL 310</td>
<td>(3)</td>
<td>Restoration and 18th Century Drama</td>
</tr>
<tr>
<td>ENGL 314</td>
<td>(3)</td>
<td>20th Century Drama</td>
</tr>
<tr>
<td>ENGL 370</td>
<td>(3)</td>
<td>Theatre History: The Long Eighteenth Century</td>
</tr>
<tr>
<td>ENGL 371</td>
<td>(3)</td>
<td>Theatre History: 19th to 21st Centuries</td>
</tr>
<tr>
<td>ENGL 416</td>
<td>(3)</td>
<td>Studies in Shakespeare</td>
</tr>
<tr>
<td>ENGL 467</td>
<td>(3)</td>
<td>Advanced Studies in Theatre History</td>
</tr>
<tr>
<td>ENGL 485</td>
<td>(3)</td>
<td>Special Topics in Theatre History 1700-1900</td>
</tr>
<tr>
<td>ENGL 486</td>
<td>(3)</td>
<td>Special Topics in Theatre History After 1900</td>
</tr>
</tbody>
</table>
Drama and Theatre Courses Before 1900

3 credits from a list of courses in Drama and Theatre before 1900:

- ENGL 306 (3) Theatre History: Medieval and Early Modern
- ENGL 308 (3) English Renaissance Drama 1
- ENGL 309 (3) English Renaissance Drama 2
- ENGL 310 (3) Restoration and 18th Century Drama
- ENGL 370 (3) Theatre History: The Long Eighteenth Century
- ENGL 416 (3) Studies in Shakespeare
- ENGL 485 (3) Special Topics in Theatre History 1700-1900

Drama and Theatre Option's Offerings - Additional Courses

6 additional credits from the option's offerings.

This category includes all the courses listed above except required courses, as well as the courses listed below.

Note: Any English course not on the lists specifically for the Drama and Theatre option - such as unlisted courses in Cultural Studies - may not count toward the Drama and Theatre program. Please consult a departmental adviser for guidance on course choices.

- ENGL 369 (3) Creative Writing: Playwriting
- ENGL 430 (3) Studies in Drama
- ENGL 431 (3) Studies in Drama
- ENGL 434 (3) Independent Theatre Project

Drama and Theatre - Courses of Interest - Other Departments

Permission to count extra-departmental credits must be obtained in advance of taking any course from outside the Department of English. Students are normally permitted to count 3 credits from other departments towards their Drama and Theatre Minor. Permission is obtained with the signature of a Department of English program adviser on the student's program audit sheet.

This list comprises courses in other departments that might be accepted by an adviser for credit towards the student's Drama and Theatre program. This list applies only to these courses as they are offered in 2011-2012.

There might be other courses in the Faculty of Arts for which a student could receive Drama and Theatre program credit. A student who has identified a course not noted below should show their program adviser the course syllabus in advance and, if he or she agrees, get the adviser's initialled approval of the course on their program audit sheet. The Department requires a complete signed audit sheet in the student's file in Arts 155 in order to process the file for graduation.

Included in the list are courses taught in languages other than English and courses that have prerequisites.

* Note: The courses in the list below with an asterisk (**) have an historical dimension and may count toward this program requirement. Other courses could count toward the "option's offerings" component of the program.

- EAST 464 (3) Image, Text, Performance
- HISP 324* (3) 20th Century Drama
- MUAR 387* (3) The Opera
- PHIL 242 (3) Introduction to Feminist Theory
- PSYC 212 (3) Perception

3.11.17.8 Bachelor of Arts (B.A.) – Minor Concentration English – Cultural Studies (18 credits)

Revision, August 2011. Start of revision.

The Minor Concentration English - Cultural Studies may be expanded to the Major Concentration English - Cultural Studies.

For the most up-to-date information on Department requirements and detailed course descriptions, please see the English Department Handbook at http://www.mcgill.ca/english/.

Required Courses (3 credits)
### Complementary Courses (15 credits)
15 credits selected as described below.

Note on Topics Courses: The Department of English offers courses which change topic from academic year to academic year. Depending on the topic in a specific year, these courses may count toward different program requirements. At the time they register for a topics course, students should confirm with their program adviser the program requirement it fulfills for that academic year.

### Major Figures
3 credits from a list of courses on Major Figures in Cultural Studies:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 315</td>
<td>3</td>
<td>Shakespeare</td>
</tr>
<tr>
<td>ENGL 381</td>
<td>3</td>
<td>A Film-Maker 1</td>
</tr>
<tr>
<td>ENGL 418</td>
<td>3</td>
<td>A Major Modernist Writer</td>
</tr>
<tr>
<td>ENGL 481</td>
<td>3</td>
<td>A Film-Maker 2</td>
</tr>
</tbody>
</table>

### Historical Dimension
3 credits from a list of courses in Cultural Studies with an historical dimension:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 350</td>
<td>3</td>
<td>Studies in the History of Film 1</td>
</tr>
<tr>
<td>ENGL 351</td>
<td>3</td>
<td>Studies in the History of Film 2</td>
</tr>
<tr>
<td>ENGL 363</td>
<td>3</td>
<td>Studies in the History of Film 3</td>
</tr>
<tr>
<td>ENGL 374</td>
<td>3</td>
<td>Film Movement or Period</td>
</tr>
<tr>
<td>ENGL 451</td>
<td>3</td>
<td>A Period in Cinema</td>
</tr>
<tr>
<td>ENGL 480</td>
<td>3</td>
<td>Studies in History of Film 1</td>
</tr>
</tbody>
</table>

### 400-Level Theory
3 credits from a list of 400-level courses in Cultural Studies with a theoretical component:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 454</td>
<td>3</td>
<td>Topics in Cultural Studies and Gender</td>
</tr>
<tr>
<td>ENGL 479</td>
<td>3</td>
<td>Philosophy of Film</td>
</tr>
<tr>
<td>ENGL 484</td>
<td>3</td>
<td>Seminar in the Film</td>
</tr>
<tr>
<td>ENGL 487</td>
<td>3</td>
<td>Cultural Icons</td>
</tr>
<tr>
<td>ENGL 488</td>
<td>3</td>
<td>Special Topics / Communications and Mass Media 2</td>
</tr>
<tr>
<td>ENGL 489</td>
<td>3</td>
<td>Culture and Critical Theory 1</td>
</tr>
<tr>
<td>ENGL 490</td>
<td>3</td>
<td>Culture and Critical Theory 2</td>
</tr>
<tr>
<td>ENGL 492</td>
<td>3</td>
<td>Image and Text</td>
</tr>
<tr>
<td>ENGL 497</td>
<td>3</td>
<td>Seminar in Cultural Studies</td>
</tr>
</tbody>
</table>

### Additional Cultural Studies
6 additional credits from the option's offerings which includes all the courses specifically listed in the Cultural Studies categories above and the courses listed below. Any ENGL course not on these Cultural Studies lists, such as courses in Literature, may not count toward the Minor Concentration English - Cultural Studies.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 280</td>
<td>3</td>
<td>Introduction to Film as Mass Medium</td>
</tr>
<tr>
<td>ENGL 354</td>
<td>3</td>
<td>Sexuality and Representation</td>
</tr>
<tr>
<td>ENGL 366</td>
<td>3</td>
<td>Film Genre</td>
</tr>
<tr>
<td>ENGL 378</td>
<td>3</td>
<td>Media and Culture</td>
</tr>
</tbody>
</table>
Revision, August 2011. End of revision.

3.11.17.9 Bachelor of Arts (B.A.) - Major Concentration English - Literature (36 credits)

The Literature option provides a grounding in the basic texts and methods of the discipline as well as wide acquaintance with substantial areas of the field.

For the most up-to-date information on Department requirements and detailed course descriptions, please see the English Department Handbook at http://www.mcgill.ca/english/.

Required Courses (9 credits)

These courses should be taken in the first two terms of the program.

- ENGL 202 (3) Departmental Survey of English Literature 1
- ENGL 203 (3) Departmental Survey of English Literature 2
- ENGL 311 (3) Poetics

Complementary Courses (27 credits)

27 credits selected as described below.

Note on Topics Courses: The Department of English offers courses which change topic from academic year to academic year. Depending on the topic in a specific year, these courses may count toward different program requirements. At the time they register for a topics course, students should confirm with their program adviser the program requirement it fulfills for that academic year.

Canadian Literature

3 credits from a list of Canadian Literature courses:

- ENGL 228 (3) Canadian Literature 1
- ENGL 229 (3) Canadian Literature 2
- ENGL 327 (3) Canadian Prose Fiction 1
- ENGL 328 (3) Development of Canadian Poetry 1
- ENGL 333 (3) Development of Canadian Poetry 2
- ENGL 339 (3) Canadian Prose Fiction 2
- ENGL 409 (3) Studies in a Canadian Author
- ENGL 410 (3) Theme or Movement Canadian Literature
ENGL 411 (3) Studies in Canadian Fiction

**Theory or Criticism**
3 credits from a list of courses on Theory or Criticism:

- ENGL 317 (3) Theory of English Studies 1
- ENGL 318 (3) Theory of English Studies 2
- ENGL 319 (3) Theory of English Studies 3
- ENGL 322 (3) Theories of the Text
- ENGL 346 (3) Materiality and Sociology of Text
- ENGL 352 (3) Theories of Difference

**Areas of English Literature**
6 credits, 3 credits each from two of the following areas: Backgrounds of English Literature, Old English, Medieval, Renaissance:

**Backgrounds of English Literature**

- ENGL 340 (3) History of the English Language
- ENGL 347 (3) Great Writings of Europe 1
- ENGL 348 (3) Great Writings of Europe 2
- ENGL 349 (3) English Literature and Folklore 1

**Old English**

- ENGL 342 (3) Introduction to Old English
- ENGL 349 (3) English Literature and Folklore 1
- ENGL 452 (3) Studies in Old English

**Medieval**

- ENGL 337 (3) Theme or Genre in Medieval Literature
- ENGL 349 (3) English Literature and Folklore 1
- ENGL 356 (3) Middle English
- ENGL 357 (3) Chaucer - Canterbury Tales
- ENGL 358 (3) Chaucer - Troilus and Criseyde
- ENGL 456 (3) Middle English

**Renaissance**

- ENGL 215 (3) Introduction to Shakespeare
- ENGL 305 (3) Renaissance English Literature 1
- ENGL 307 (3) Renaissance English Literature 2
- ENGL 308 (3) English Renaissance Drama 1
- ENGL 309 (3) English Renaissance Drama 2
- ENGL 315 (3) Shakespeare
- ENGL 316 (3) Milton
- ENGL 349 (3) English Literature and Folklore 1
Areas of English Literature

6 credits, 3 credits each from two of the following areas: Restoration, 18th Century, Romantic, Victorian, 19th-Century American:

**Restoration**

ENGL 302 (3) Restoration and 18th C. English Literature 1
ENGL 303 (3) Restoration and 18th C. English Literature 2

**18 Century**

ENGL 301 (3) Earlier 18th Century Novel
ENGL 302 (3) Restoration and 18th C. English Literature 1
ENGL 303 (3) Restoration and 18th C. English Literature 2
ENGL 304 (3) Later Eighteenth Century Novel
ENGL 403 (3) Studies in the 18th Century
ENGL 449 (3) Studies in the Gothic

**Romantic**

ENGL 331 (3) Literature Romantic Period 1
ENGL 332 (3) Literature Romantic Period 2
ENGL 405 (3) Studies in 19th Century Literature 2

**Victorian**

ENGL 329 (3) English Novel: 19th Century 1
ENGL 330 (3) English Novel: 19th Century 2
ENGL 334 (3) Victorian Poetry
ENGL 404 (3) Studies in 19th Century Literature 1
ENGL 405 (3) Studies in 19th Century Literature 2

**19th-Century American**

ENGL 326 (3) 19th Century American Prose
ENGL 422 (3) Studies in 19th Century American Literature

**Areas of English Literature**

3 credits from one of the following areas: Early 20th Century, Modernist, Post-modern, Contemporary:

**Early 20th Century**

ENGL 361 (3) Poetry of the 20th Century 1
ENGL 414 (3) Studies in 20th Century Literature 1

**Modernist**

McGill University, Undergraduate Programs, Courses and University Regulations, 2011-2012 (Published August 17, 2011)
ENGL 335 (3) The 20th Century Novel 1
ENGL 361 (3) Poetry of the 20th Century 1
ENGL 414 (3) Studies in 20th Century Literature 1
ENGL 418 (3) A Major Modernist Writer

**Post-modernist**

ENGL 320 (3) Postcolonial Literature
ENGL 339 (3) Canadian Prose Fiction 2
ENGL 443 (3) Contemporary Women's Fiction

**Contemporary**

ENGL 320 (3) Postcolonial Literature
ENGL 323 (3) 20th Century American Poetry
ENGL 333 (3) Development of Canadian Poetry 2
ENGL 336 (3) The 20th Century Novel 2
ENGL 339 (3) Canadian Prose Fiction 2
ENGL 362 (3) Poetry of the 20th Century 2
ENGL 407 (3) The 20th Century
ENGL 408 (3) The 20th Century
ENGL 419 (3) Studies in 20th Century Literature
ENGL 443 (3) Contemporary Women's Fiction

**Additional Literature**

6 additional credits from ENGL offerings in Literature which includes all the courses specifically listed in the Literature categories above and the courses listed below. Any ENGL course not on these Literature lists, such as courses in Cultural Studies, may not count toward the Major Concentration in English - Literature.

ENGL 199 (3) FYS: Literature and Democracy
ENGL 204 (3) English Literature and the Bible
ENGL 237 (3) Introduction to Study of a Literary Form
ENGL 238 (3) Comedy
ENGL 297 (3) Special Topics of Literary Study
ENGL 321 (3) Caribbean Fiction
ENGL 338 (3) Short Story
ENGL 343 (3) Literature and Science 1
ENGL 345 (3) Literature and Society
ENGL 353 (3) Interdisciplinary Approaches to Literary Research
ENGL 354 (3) Sexuality and Representation
ENGL 364 (3) Creative Writing: Fiction 2
ENGL 369 (3) Creative Writing: Playwriting
ENGL 385 (3) Topics in Literature and Film
ENGL 394 (3) Popular Literary Forms
ENGL 421 (3) African Literature
ENGL 424 (3) Irish Literature
ENGL 437 (3) Studies in Literary Form
ENGL 438 (3) Studies in Literary Form
ENGL 440 (3) First Nations and Inuit Literature and Media
ENGL 447 (3) Crosscurrents/English Literature and European Literature 1
ENGL 464 (3) Creative Writing: Poetry

Major Author
3 credits on a Major Author must be included in the 27 complementary course credits.

ENGL 315 (3) Shakespeare
ENGL 316 (3) Milton
ENGL 357 (3) Chaucer - Canterbury Tales
ENGL 409 (3) Studies in a Canadian Author
ENGL 416 (3) Studies in Shakespeare
ENGL 417 (3) A Major English Poet
ENGL 418 (3) A Major Modernist Writer

3.11.17.10 Bachelor of Arts (B.A.) - Major Concentration English - Drama and Theatre (36 credits)

The Drama and Theatre option tries to place its subject in as broad a social and philosophical context as possible. The Drama and Theatre program is not designed to provide professional theatre training. The aim is rather to encourage students to explore the subject as a liberal arts discipline.

For the most up-to-date information on Department requirements and detailed course descriptions, please see the English Department Handbook at http://www.mcgill.ca/english/.

Required Courses (9 credits)
9 credits to be taken in the first two terms of the program

ENGL 230 (3) Introduction to Theatre Studies
ENGL 269 (3) Introduction to Performance
ENGL 355 (3) The Poetics of Performance

Complementary Courses (27 credits)
27 credits selected as described below.

Performance-Oriented Courses
3 credits from the list of Performance-Oriented Courses:

ENGL 365 (3) Costuming for the Theatre 1
ENGL 367 (3) Acting 2
ENGL 368 (3) Stage Scenery and Lighting 1
ENGL 372 (3) Stage Scenery and Lighting 2
ENGL 373 (3) Voice and Speech 2
ENGL 375 (3) Interpretation Dramatic Text
ENGL 376 (3) Scene Study
ENGL 377 (3) Costuming for the Theatre 2
ENGL 465D1 (4.5) Theatre Laboratory
ENGL 465D2 (4.5) Theatre Laboratory
ENGL 466D1 (3) Directing for the Theatre
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 466D2</td>
<td>(3)</td>
<td>Directing for the Theatre</td>
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<tr>
<td>ENGL 469</td>
<td>(3)</td>
<td>Acting 3</td>
</tr>
<tr>
<td>ENGL 474</td>
<td>(3)</td>
<td>Advanced Practical Work Theatre 2</td>
</tr>
</tbody>
</table>

**Drama and/or Theatre Courses with a Canadian Component**

3 credits from the list of Drama and/or Theatre courses with a Canadian component:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 313</td>
<td>(3)</td>
<td>Canadian Drama and Theatre</td>
</tr>
<tr>
<td>ENGL 413</td>
<td>(3)</td>
<td>Special Topics in Canadian Drama and Theatre</td>
</tr>
</tbody>
</table>

**Theory or Criticism Courses**

3 credits from the list of Theory or Criticism courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 317</td>
<td>(3)</td>
<td>Theory of English Studies 1</td>
</tr>
<tr>
<td>ENGL 318</td>
<td>(3)</td>
<td>Theory of English Studies 2</td>
</tr>
<tr>
<td>ENGL 319</td>
<td>(3)</td>
<td>Theory of English Studies 3</td>
</tr>
<tr>
<td>ENGL 322</td>
<td>(3)</td>
<td>Theories of the Text</td>
</tr>
<tr>
<td>ENGL 346</td>
<td>(3)</td>
<td>Materiality and Sociology of Text</td>
</tr>
<tr>
<td>ENGL 352</td>
<td>(3)</td>
<td>Theories of Difference</td>
</tr>
</tbody>
</table>

**Theatre History Courses**

3 credits from the list of Theatre History courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 306</td>
<td>(3)</td>
<td>Theatre History: Medieval and Early Modern</td>
</tr>
<tr>
<td>ENGL 308</td>
<td>(3)</td>
<td>English Renaissance Drama 1</td>
</tr>
<tr>
<td>ENGL 309</td>
<td>(3)</td>
<td>English Renaissance Drama 2</td>
</tr>
<tr>
<td>ENGL 310</td>
<td>(3)</td>
<td>Restoration and 18th Century Drama</td>
</tr>
<tr>
<td>ENGL 314</td>
<td>(3)</td>
<td>20th Century Drama</td>
</tr>
<tr>
<td>ENGL 370</td>
<td>(3)</td>
<td>Theatre History: The Long Eighteenth Century</td>
</tr>
<tr>
<td>ENGL 371</td>
<td>(3)</td>
<td>Theatre History: 19th to 21st Centuries</td>
</tr>
<tr>
<td>ENGL 416</td>
<td>(3)</td>
<td>Studies in Shakespeare</td>
</tr>
<tr>
<td>ENGL 467</td>
<td>(3)</td>
<td>Advanced Studies in Theatre History</td>
</tr>
<tr>
<td>ENGL 485</td>
<td>(3)</td>
<td>Special Topics in Theatre History 1700-1900</td>
</tr>
<tr>
<td>ENGL 486</td>
<td>(3)</td>
<td>Special Topics in Theatre History After 1900</td>
</tr>
</tbody>
</table>

**Drama and Theatre Before 1900 Courses**

3 credits from the list of courses in Drama and Theatre before 1900:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 306</td>
<td>(3)</td>
<td>Theatre History: Medieval and Early Modern</td>
</tr>
<tr>
<td>ENGL 308</td>
<td>(3)</td>
<td>English Renaissance Drama 1</td>
</tr>
<tr>
<td>ENGL 309</td>
<td>(3)</td>
<td>English Renaissance Drama 2</td>
</tr>
<tr>
<td>ENGL 310</td>
<td>(3)</td>
<td>Restoration and 18th Century Drama</td>
</tr>
<tr>
<td>ENGL 370</td>
<td>(3)</td>
<td>Theatre History: The Long Eighteenth Century</td>
</tr>
<tr>
<td>ENGL 416</td>
<td>(3)</td>
<td>Studies in Shakespeare</td>
</tr>
<tr>
<td>ENGL 485</td>
<td>(3)</td>
<td>Special Topics in Theatre History 1700-1900</td>
</tr>
</tbody>
</table>
Drama and Theatre Option’s Offerings - Additional Courses

12 additional credits from the option's offerings.

This category includes all the courses listed above except required courses, as well as the courses listed below.

Note: Any English course not on the lists specifically for the Drama and Theatre option - such as unlisted courses in Cultural Studies - may not count towards the Drama and Theatre program. Please consult a departmental adviser for guidance on course choices.

ENGL 369 (3) Creative Writing: Playwriting
ENGL 430 (3) Studies in Drama
ENGL 431 (3) Studies in Drama
ENGL 434 (3) Independent Theatre Project

Drama and Theatre - Courses of Interest - Other Departments

Students are normally permitted to count 6 credits from other departments toward their English programs. In exceptional circumstances, an adviser, approached by a student with strong academic grounds for including a third such course, may grant permission, to a maximum of 9 extra-departmental credits, and must so indicate in advance by signing the departmental program audit sheet.

This list comprises courses in other departments that might be accepted by an adviser for credit towards the student’s Drama and Theatre program. This list applies only to these courses as they are offered in 2011-2012.

There might be other courses in the Faculty of Arts for which a student could receive Drama and Theatre program credit. A student who has identified a course not noted below, should show their program adviser the course syllabus in advance and, if he or she agrees, get the adviser's initialled approval of the course on their program audit sheet. The Department requires a complete signed audit sheet in the student's file in Arts 155 in order to process the file for graduation.

Included in the list are courses taught in languages other than English and courses that have prerequisites.

* Note: The courses in the list below with an asterisk (“*”) have an historical dimension and may count toward this program requirement. Other courses could count toward the “option's offerings” component of the program.

EAST 464 (3) Image, Text, Performance
HISP 324* (3) 20th Century Drama
MUAR 387* (3) The Opera
PHIL 242 (3) Introduction to Feminist Theory
PSYC 212 (3) Perception

3.11.17.11 Bachelor of Arts (B.A.) – Major Concentration English – Cultural Studies (36 credits)

Revision, August 2011. Start of revision.

The Cultural Studies option concentrates on analysis of forms of cultural expression and symbolic interaction, and of the various media through which these may be disseminated and transformed. Such study concerns symbolic form, aesthetically based forms of analysis, and the various modes of criticism and theory relevant to media which contain both verbal and non-verbal elements. The aim is above all to hone students' analytical and interpretive skills while introducing them to specific critical approaches to cultural studies. This is not a major in journalism or communications; and while many of our graduates go on to do creative work in a variety of media, instruction in film and video production is not part of the curriculum.

For the most up-to-date information on Department requirements and detailed course descriptions, please see the English Department Handbook at http://www.mcgill.ca/english/.

Required Courses (9 credits)

These courses should be taken in the first two terms of the program.

ENGL 275 (3) Introduction to Cultural Studies
ENGL 277 (3) Introduction to Film Studies
ENGL 359 (3) The Poetics of the Image

Complementary Courses (27 credits)

27 credits selected as described below.
Note on Topics Courses: The Department of English offers courses which change topic from academic year to academic year. Depending on the topic in a specific year, these courses may count toward different program requirements. At the time they register for a topics course, students should confirm with their program adviser the program requirement it fulfills for that academic year.

**Major Figures**

3 credits from a list of courses on Major Figures in Cultural Studies:

- ENGL 315 (3) Shakespeare
- ENGL 381 (3) A Film-Maker 1
- ENGL 418 (3) A Major Modernist Writer
- ENGL 481 (3) A Film-Maker 2

**Canadian Component**

3 credits from a list of courses in Cultural Studies with a Canadian component:

- ENGL 341 (3) Canadian Radio and Television
- ENGL 393 (3) Canadian Cinema
- ENGL 440 (3) First Nations and Inuit Literature and Media
- ENGL 441 (3) Special Topics in Canadian Cultural Studies

**Theory or Criticism**

3 credits from a list of courses on Theory or Criticism:

- ENGL 317 (3) Theory of English Studies 1
- ENGL 318 (3) Theory of English Studies 2
- ENGL 319 (3) Theory of English Studies 3
- ENGL 322 (3) Theories of the Text
- ENGL 346 (3) Materiality and Sociology of Text
- ENGL 352 (3) Theories of Difference

**400-Level Theory**

3 credits from a list of 400-level courses in Cultural Studies with a theoretical component.

**Historical Dimension**

6 credits from a list of courses in Cultural Studies with an historical dimension:

- ENGL 350 (3) Studies in the History of Film 1
- ENGL 351 (3) Studies in the History of Film 2
- ENGL 363 (3) Studies in the History of Film 3
- ENGL 374 (3) Film Movement or Period
- ENGL 451 (3) A Period in Cinema
- ENGL 480 (3) Studies in History of Film 1

**Additional Cultural Studies**

9 additional credits from the option's offerings which includes all the courses specifically listed in the Cultural Studies categories above and the courses listed below. Any ENGL course not on these Cultural Studies lists, such as courses in Literature, may not count toward the Major Concentration English - Cultural Studies.

- ENGL 280 (3) Introduction to Film as Mass Medium
- ENGL 354 (3) Sexuality and Representation
Other Departments

Students are normally permitted to count 6 credits from other departments toward their English programs. In exceptional circumstances, an adviser who is approached by a student with strong academic grounds for including a third such course may grant permission (to a maximum of 9 extra-departmental credits) and must so indicate in advance by signing the departmental program audit sheet.

Revision, August 2011. End of revision.

Bachelor of Arts (B.A.) - Honours English - Literature (60 credits)

Entry to Honours is by application, normally after two terms in a Departmental program, including at least 18 credits of English. The Faculty of Arts requires that all students admitted to Honours programs complete a second-program minor in addition to their Honours program.

Admission to the Honours program is limited to a small number of students with excellent records. The minimum CGPA for application to the Honours program is 3.50; students meeting the 3.50 minimum in English Department courses alone (although not in CGPA) may also apply and make a case for their acceptance. In neither instance is admission guaranteed. After admission into the Honours program, the student is required to maintain a CGPA at a level set by the Faculty for graduation with Honours and a program GPA at the level set by the Department.

The Honours program in English requires 60 credits. Students intending to apply for Honours should plan to complete as many of the specific requirements of their option as possible within the first two years. With the written approval of an adviser, up to 9 credits may be taken outside the Department. All Honours students must complete at least 6 of their complementary credits at the 500 level. Ideally, 500-level seminars chosen will be relevant to the area of the student's independent study in the Honours Essay course (ENGL 491D1/ENGL 491D2), taken without exception in the final year of the program. The Honours Essay is first planned in consultation with a supervisor at the time of application to the Honours program; it is then guided and evaluated by that supervisor during the completion of ENGL 491. Graduation with Honours requires 60 credits of English, a minimum mark of B+ on the Honours Essay, a minimum CGPA of 3.00, and a minimum program GPA of 3.50. Graduation with First Class Honours requires a mark of A on the Honours Essay, a minimum CGPA of 3.50, and a minimum program GPA of 3.70.

Required Courses (18 credits)

ENGL 202, ENGL 203 and ENGL 311 are normally taken in the first two terms of the program. ENGL 360 is normally taken in the second year of the program.

ENGL 202 (3) Departmental Survey of English Literature 1
ENGL 203 (3) Departmental Survey of English Literature 2
ENGL 311 (3) Poetics
ENGL 360 (3) Literary Criticism
ENGL 491D1 (3) Honours Essay
Complementary Courses (42 credits)
42 credits selected as described below. At least 6 of the 42 credits must be at the 500 level. A maximum of 9 credits may be from another department with the signed permission of the program adviser.

Note on Topics Courses: The Department of English offers courses which change topic from academic year to academic year. Depending on the topic in a specific year, these courses may count toward different program requirements. At the time they register for a topics course, students should confirm with their program adviser the program requirement it fulfills for that academic year.

Canadian Literature
3 credits from a list of Canadian Literature courses:

- ENGL 228 (3) Canadian Literature 1
- ENGL 229 (3) Canadian Literature 2
- ENGL 327 (3) Canadian Prose Fiction 1
- ENGL 328 (3) Development of Canadian Poetry 1
- ENGL 333 (3) Development of Canadian Poetry 2
- ENGL 339 (3) Canadian Prose Fiction 2
- ENGL 409 (3) Studies in a Canadian Author
- ENGL 410 (3) Theme or Movement Canadian Literature
- ENGL 411 (3) Studies in Canadian Fiction
- ENGL 527 (3) Canadian Literature
- ENGL 528 (3) Canadian Literature

American Literature
3 credits from a list of American Literature courses:

- ENGL 225 (3) American Literature 1
- ENGL 226 (3) American Literature 2
- ENGL 227 (3) American Literature 3
- ENGL 323 (3) 20th Century American Poetry
- ENGL 324 (3) 20th Century American Prose
- ENGL 325 (3) Modern American Fiction
- ENGL 326 (3) 19th Century American Prose
- ENGL 422 (3) Studies in 19th Century American Literature
- ENGL 423 (3) Studies in 19th Century Literature
- ENGL 525 (3) American Literature

Shakespeare
3 credits from a list of courses on Shakespeare.

- ENGL 315 (3) Shakespeare
- ENGL 416 (3) Studies in Shakespeare
- ENGL 516 (3) Shakespeare

Theory
3 credits from a list of courses on Theory:
### Theory of English Studies
- ENGL 317 (3) Theory of English Studies 1
- ENGL 318 (3) Theory of English Studies 2
- ENGL 319 (3) Theory of English Studies 3
- ENGL 322 (3) Theories of the Text
- ENGL 346 (3) Materiality and Sociology of Text
- ENGL 352 (3) Theories of Difference

### Areas of English Literature
6 credits, 3 credits each from two of the following areas: Backgrounds of English Literature, Old English, Medieval, Renaissance.

#### Backgrounds of English Literature
- ENGL 340 (3) History of the English Language
- ENGL 347 (3) Great Writings of Europe 1
- ENGL 348 (3) Great Writings of Europe 2
- ENGL 349 (3) English Literature and Folklore 1

#### Old English
- ENGL 342 (3) Introduction to Old English
- ENGL 349 (3) English Literature and Folklore 1
- ENGL 452 (3) Studies in Old English
- ENGL 553 (3) Old English Literature

#### Medieval
- ENGL 337 (3) Theme or Genre in Medieval Literature
- ENGL 349 (3) English Literature and Folklore 1
- ENGL 356 (3) Middle English
- ENGL 357 (3) Chaucer - Canterbury Tales
- ENGL 358 (3) Chaucer - Troilus and Criseyde
- ENGL 456 (3) Middle English
- ENGL 500 (3) Middle English

#### Renaissance
- ENGL 215 (3) Introduction to Shakespeare
- ENGL 305 (3) Renaissance English Literature 1
- ENGL 307 (3) Renaissance English Literature 2
- ENGL 308 (3) English Renaissance Drama 1
- ENGL 309 (3) English Renaissance Drama 2
- ENGL 315 (3) Shakespeare
- ENGL 316 (3) Milton
- ENGL 349 (3) English Literature and Folklore 1
- ENGL 400 (3) Earlier English Renaissance
- ENGL 401 (3) Studies in the 17th Century
Areas of English Literature
6 credits, 3 credits each from two of the following areas: Restoration, 18th Century, Romantic, Victorian, 19th-Century American.

Restoration
ENGL 302 (3) Restoration and 18th C. English Literature 1
ENGL 303 (3) Restoration and 18th C. English Literature 2

18th Century
ENGL 301 (3) Earlier 18th Century Novel
ENGL 302 (3) Restoration and 18th C. English Literature 1
ENGL 303 (3) Restoration and 18th C. English Literature 2
ENGL 304 (3) Later Eighteenth Century Novel
ENGL 403 (3) Studies in the 18th Century
ENGL 449 (3) Studies in the Gothic
ENGL 503 (3) 18th Century

Romantic
ENGL 331 (3) Literature Romantic Period 1
ENGL 332 (3) Literature Romantic Period 2
ENGL 405 (3) Studies in 19th Century Literature 2
ENGL 504 (3) 19th Century

Victorian
ENGL 329 (3) English Novel: 19th Century 1
ENGL 330 (3) English Novel: 19th Century 2
ENGL 334 (3) Victorian Poetry
ENGL 404 (3) Studies in 19th Century Literature 1
ENGL 405 (3) Studies in 19th Century Literature 2
ENGL 504 (3) 19th Century

19th-Century American
ENGL 326 (3) 19th Century American Prose
ENGL 422 (3) Studies in 19th Century American Literature

Areas of English Literature
3 credits from one of the following areas: Early 20th Century, Modernist, Post-modern, Contemporary.

Early 20th Century
ENGL 361 (3) Poetry of the 20th Century 1
ENGL 414 (3) Studies in 20th Century Literature 1
Modernist
ENGL 335 (3)  The 20th Century Novel 1
ENGL 361 (3)  Poetry of the 20th Century 1
ENGL 414 (3)  Studies in 20th Century Literature 1
ENGL 418 (3)  A Major Modernist Writer
ENGL 505 (3)  20th Century

Post-modernist
ENGL 320 (3)  Postcolonial Literature
ENGL 339 (3)  Canadian Prose Fiction 2
ENGL 443 (3)  Contemporary Women's Fiction

Contemporary
ENGL 320 (3)  Postcolonial Literature
ENGL 323 (3)  20th Century American Poetry
ENGL 333 (3)  Development of Canadian Poetry 2
ENGL 336 (3)  The 20th Century Novel 2
ENGL 339 (3)  Canadian Prose Fiction 2
ENGL 362 (3)  Poetry of the 20th Century 2
ENGL 407 (3)  The 20th Century
ENGL 408 (3)  The 20th Century
ENGL 419 (3)  Studies in 20th Century Literature
ENGL 443 (3)  Contemporary Women's Fiction

Cultural Studies
3 credits selected from ENGL courses specific to Cultural Studies. Please consult the complementary course lists for Cultural Studies programs for course choices.

Drama and Theatre
3 credits selected from ENGL courses specific to Drama and Theatre. Please consult the complementary course lists for Drama and Theatre programs for course choices.

Department Offerings
9 credits from among other Department offerings (ENGL courses).

3.11.17.13 Bachelor of Arts (B.A.) - Honours English - Drama and Theatre (60 credits)
Entry to Honours is by application, normally after two terms in a Departmental program, including at least 18 credits of English. The Faculty of Arts requires that all students admitted to Honours programs complete a second-program minor in addition to their Honours program.

Admission to the Honours program is limited to a small number of students with excellent records. The minimum CGPA for application to the Honours program is 3.50; students meeting the 3.50 minimum in English Department courses alone (although not in CGPA) may also apply and make a case for their acceptance. In neither instance is admission guaranteed. After admission into the Honours program, the student is required to maintain a CGPA at a level set by the Faculty for graduation with Honours and a program GPA at the level set by the Department.

The Honours program in English requires 60 credits. Students intending to apply for Honours should plan to complete as many of the specific requirements of their option as possible within the first two years. With the written approval of an adviser, up to 9 credits may be taken outside the department. All Honours students must complete at least 6 of their complementary credits at the 500 level. Ideally, 500-level seminars chosen will be relevant to the area of the student's independent study in the Honours Essay course (ENGL 491D1/ENGL 491D2), taken without exception in the final year of the program. The Honours Essay is first planned in consultation with a supervisor at the time of application to the Honours program; it is then guided and evaluated by that supervisor during the completion of ENGL 491. Graduation with Honours requires 60 credits of English, a minimum mark of B+ on the Honours Essay, a minimum CGPA...
of 3.00, and a minimum program GPA of 3.50. Graduation with First Class Honours requires a mark of A on the Honours Essay, a minimum CGPA of 3.50, and a minimum program GPA of 3.70.

**Required Courses (15 credits)**

Note: ENGL 230, ENGL 269 and ENGL 355 should be taken in the first two terms of the program.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 230</td>
<td>Introduction to Theatre Studies</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 269</td>
<td>Introduction to Performance</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 355</td>
<td>The Poetics of Performance</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 491D1</td>
<td>Honours Essay</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 491D2</td>
<td>Honours Essay</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**Complementary Courses (45 credits)**

45 credits selected as described below. At least 6 of the 45 credits must be at the 500 level. A maximum of 9 credits may be from another department with the signed permission of the Program Adviser.

**Shakespeare or Another Major Figure in Drama and Theatre Courses**

3 credits from a list of courses on Shakespeare or, when available and with an instructor's signed permission on the student's Audit Sheet, another major figure in Drama and Theatre:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 315</td>
<td>Shakespeare</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 416</td>
<td>Studies in Shakespeare</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 516</td>
<td>Shakespeare</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**Drama and/or Theatre Courses with a Canadian Component**

3 credits from a list of courses in Drama and/or Theatre with a Canadian component:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 313</td>
<td>Canadian Drama and Theatre</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 413</td>
<td>Special Topics in Canadian Drama and Theatre</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**Theatre History Courses**

3 credits from the list of courses in Theatre History:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 306</td>
<td>Theatre History: Medieval and Early Modern</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 308</td>
<td>English Renaissance Drama 1</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 309</td>
<td>English Renaissance Drama 2</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 310</td>
<td>Restoration and 18th Century Drama</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 314</td>
<td>20th Century Drama</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 370</td>
<td>Theatre History: The Long Eighteenth Century</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 371</td>
<td>Theatre History: 19th to 21st Centuries</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 416</td>
<td>Studies in Shakespeare</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 467</td>
<td>Advanced Studies in Theatre History</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 485</td>
<td>Special Topics in Theatre History 1700-1900</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 486</td>
<td>Special Topics in Theatre History After 1900</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 516</td>
<td>Shakespeare</td>
<td>(3)</td>
</tr>
<tr>
<td>ENGL 565</td>
<td>Medieval Drama Workshop</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**Drama and Theatre Before 1900 Courses**

3 credits from the list of courses in Drama and Theatre before 1900:
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 306</td>
<td>(3)</td>
<td>Theatre History: Medieval and Early Modern</td>
</tr>
<tr>
<td>ENGL 308</td>
<td>(3)</td>
<td>English Renaissance Drama 1</td>
</tr>
<tr>
<td>ENGL 309</td>
<td>(3)</td>
<td>English Renaissance Drama 2</td>
</tr>
<tr>
<td>ENGL 310</td>
<td>(3)</td>
<td>Restoration and 18th Century Drama</td>
</tr>
<tr>
<td>ENGL 370</td>
<td>(3)</td>
<td>Theatre History: The Long Eighteenth Century</td>
</tr>
<tr>
<td>ENGL 416</td>
<td>(3)</td>
<td>Studies in Shakespeare</td>
</tr>
<tr>
<td>ENGL 485</td>
<td>(3)</td>
<td>Special Topics in Theatre History 1700-1900</td>
</tr>
<tr>
<td>ENGL 516</td>
<td>(3)</td>
<td>Shakespeare</td>
</tr>
<tr>
<td>ENGL 565</td>
<td>(3)</td>
<td>Medieval Drama Workshop</td>
</tr>
</tbody>
</table>

**Theory Courses**

3 credits from the list of courses in Theory:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 317</td>
<td>(3)</td>
<td>Theory of English Studies 1</td>
</tr>
<tr>
<td>ENGL 318</td>
<td>(3)</td>
<td>Theory of English Studies 2</td>
</tr>
<tr>
<td>ENGL 319</td>
<td>(3)</td>
<td>Theory of English Studies 3</td>
</tr>
<tr>
<td>ENGL 322</td>
<td>(3)</td>
<td>Theories of the Text</td>
</tr>
<tr>
<td>ENGL 346</td>
<td>(3)</td>
<td>Materiality and Sociology of Text</td>
</tr>
<tr>
<td>ENGL 352</td>
<td>(3)</td>
<td>Theories of Difference</td>
</tr>
</tbody>
</table>

**400-Level Theory Courses**

3 credits from a list of courses with a theoretical component, from the option's offerings at the 400 level or above:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 458</td>
<td>(3)</td>
<td>Theories of Text and Performance 1</td>
</tr>
<tr>
<td>ENGL 459</td>
<td>(3)</td>
<td>Theories of Text and Performance 2</td>
</tr>
<tr>
<td>ENGL 467</td>
<td>(3)</td>
<td>Advanced Studies in Theatre History</td>
</tr>
</tbody>
</table>

**Performance-Oriented Courses**

9 credits from the list of Performance-Oriented courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 365</td>
<td>(3)</td>
<td>Costuming for the Theatre 1</td>
</tr>
<tr>
<td>ENGL 367</td>
<td>(3)</td>
<td>Acting 2</td>
</tr>
<tr>
<td>ENGL 368</td>
<td>(3)</td>
<td>Stage Scenery and Lighting 1</td>
</tr>
<tr>
<td>ENGL 372</td>
<td>(3)</td>
<td>Stage Scenery and Lighting 2</td>
</tr>
<tr>
<td>ENGL 373</td>
<td>(3)</td>
<td>Voice and Speech 2</td>
</tr>
<tr>
<td>ENGL 375</td>
<td>(3)</td>
<td>Interpretation Dramatic Text</td>
</tr>
<tr>
<td>ENGL 376</td>
<td>(3)</td>
<td>Scene Study</td>
</tr>
<tr>
<td>ENGL 377</td>
<td>(3)</td>
<td>Costuming for the Theatre 2</td>
</tr>
<tr>
<td>ENGL 465D1</td>
<td>(4.5)</td>
<td>Theatre Laboratory</td>
</tr>
<tr>
<td>ENGL 465D2</td>
<td>(4.5)</td>
<td>Theatre Laboratory</td>
</tr>
<tr>
<td>ENGL 466D1</td>
<td>(3)</td>
<td>Directing for the Theatre</td>
</tr>
<tr>
<td>ENGL 466D2</td>
<td>(3)</td>
<td>Directing for the Theatre</td>
</tr>
<tr>
<td>ENGL 469</td>
<td>(3)</td>
<td>Acting 3</td>
</tr>
<tr>
<td>ENGL 474</td>
<td>(3)</td>
<td>Advanced Practical Work Theatre 2</td>
</tr>
</tbody>
</table>
Departmental Offerings in English Literature and/or Cultural Studies

6 credits chosen from the course lists for the English Literature and/or Cultural Studies programs. Please consult the complementary courses for the English Literature and Cultural Studies programs for course choices.

English Courses

12 credits in English selected in consultation with an academic adviser.

Drama and Theatre - Courses of Interest - Other Departments

Students are normally permitted to count 6 credits from other departments toward their English programs. In exceptional circumstances, an adviser, approached by a student with strong academic grounds for including a third such course, may grant permission, to a maximum of 9 extra-departmental credits, and must so indicate in advance by signing the departmental program audit sheet.

This list comprises courses in other departments that might be accepted by an adviser for credit towards the student's Drama and Theatre program. This list applies only to these courses as they are offered in 2011-2012.

There might be other courses in the Faculty of Arts for which a student could receive Drama and Theatre program credit. A student who has identified a course not noted below, should show their program adviser the course syllabus in advance and, if he or she agrees, get the adviser's initialled approval of the course on their program audit sheet. The Department requires a complete signed audit sheet in the student's file in Arts 155 in order to process the file for graduation.

Included in the list are courses taught in languages other than English and courses that have prerequisites.

*Note: The courses in the list below with an asterisk ("*") have an historical dimension and may count toward this program requirement. Other courses could count toward the "option's offerings" component of the program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAST 464</td>
<td>3</td>
<td>Image, Text, Performance</td>
</tr>
<tr>
<td>HISP 324*</td>
<td>3</td>
<td>20th Century Drama</td>
</tr>
<tr>
<td>MUAR 387*</td>
<td>3</td>
<td>The Opera</td>
</tr>
<tr>
<td>PHIL 242</td>
<td>3</td>
<td>Introduction to Feminist Theory</td>
</tr>
<tr>
<td>PSYC 212</td>
<td>3</td>
<td>Perception</td>
</tr>
</tbody>
</table>

3.11.17.14 Bachelor of Arts (B.A.) – Honours English – Cultural Studies (60 credits)

Revision, August 2011. Start of revision.

Entry to Honours is by application, normally after two terms in a Departmental program, including at least 18 credits of English. The Faculty of Arts requires that all students admitted to Honours programs complete a second-program minor in addition to their Honours program.

Admission to the Honours program is limited to a small number of students with excellent records. The minimum CGPA for application to the Honours program is 3.50; students meeting the 3.50 minimum in English Department courses alone (although not in CGPA) may also apply and make a case for their acceptance. In neither instance is admission guaranteed. After admission into the Honours program, the student is required to maintain a CGPA at a level set by the Faculty for graduation with Honours and a program GPA at the level set by the Department.

The Honours program in English requires 60 credits. Students intending to apply for Honours should plan to complete as many of the specific requirements of their option as possible within the first two years. With the written approval of an adviser, up to 9 credits may be taken outside the Department. All Honours students must complete at least 6 of their complementary credits at the 500 level. Ideally, 500-level seminars chosen will be relevant to the area of the student’s independent study in the Honours Essay course (ENGL 491D1/ENGL 491D2), taken without exception in the final year of the program. The Honours Essay is first planned in consultation with a supervisor at the time of application to the Honours program; it is then guided and evaluated by that supervisor during the completion of ENGL 491. Graduation with Honours requires 60 credits of English, a minimum mark of B+ on the Honours Essay, a minimum CGPA of 3.00, and a minimum program GPA of 3.50. Graduation with First Class Honours requires a mark of A on the Honours Essay, a minimum CGPA of 3.50, and a minimum program GPA of 3.70.

Required Courses (15 credits)

ENGL 275, ENGL 277, and ENGL 359 should be taken in the first two terms in the program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 275</td>
<td>3</td>
<td>Introduction to Cultural Studies</td>
</tr>
<tr>
<td>ENGL 277</td>
<td>3</td>
<td>Introduction to Film Studies</td>
</tr>
<tr>
<td>ENGL 359</td>
<td>3</td>
<td>The Poetics of the Image</td>
</tr>
<tr>
<td>ENGL 491D1</td>
<td>3</td>
<td>Honours Essay</td>
</tr>
<tr>
<td>ENGL 491D2</td>
<td>3</td>
<td>Honours Essay</td>
</tr>
</tbody>
</table>

Complementary Courses (45 credits)
45 credits selected as described below. At least 6 of the 45 credits must be at the 500 level. A maximum of 9 credits may be from another department with the signed permission of the program adviser.

Note on Topics Courses: The Department of English offers courses which change topic from academic year to academic year. Depending on the topic in a specific year, these courses may count toward different program requirements. At the time they register for a topics course, students should confirm with their program adviser the program requirement it fulfils for that academic year.

**Major Figures**
3 credits from a list of courses on Major Figures in Cultural Studies:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 315</td>
<td>3</td>
<td>Shakespeare</td>
</tr>
<tr>
<td>ENGL 381</td>
<td>3</td>
<td>A Film-Maker 1</td>
</tr>
<tr>
<td>ENGL 418</td>
<td>3</td>
<td>A Major Modernist Writer</td>
</tr>
<tr>
<td>ENGL 481</td>
<td>3</td>
<td>A Film-Maker 2</td>
</tr>
<tr>
<td>ENGL 516</td>
<td>3</td>
<td>Shakespeare</td>
</tr>
</tbody>
</table>

**Canadian Component**
3 credits from a list of courses with a Canadian component:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 341</td>
<td>3</td>
<td>Canadian Radio and Television</td>
</tr>
<tr>
<td>ENGL 393</td>
<td>3</td>
<td>Canadian Cinema</td>
</tr>
<tr>
<td>ENGL 440</td>
<td>3</td>
<td>First Nations and Inuit Literature and Media</td>
</tr>
<tr>
<td>ENGL 441</td>
<td>3</td>
<td>Special Topics in Canadian Cultural Studies</td>
</tr>
</tbody>
</table>

**Theory or Criticism**
3 credits from a list of courses on Theory or Criticism:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 317</td>
<td>3</td>
<td>Theory of English Studies 1</td>
</tr>
<tr>
<td>ENGL 318</td>
<td>3</td>
<td>Theory of English Studies 2</td>
</tr>
<tr>
<td>ENGL 319</td>
<td>3</td>
<td>Theory of English Studies 3</td>
</tr>
<tr>
<td>ENGL 322</td>
<td>3</td>
<td>Theories of the Text</td>
</tr>
<tr>
<td>ENGL 346</td>
<td>3</td>
<td>Materiality and Sociology of Text</td>
</tr>
<tr>
<td>ENGL 352</td>
<td>3</td>
<td>Theories of Difference</td>
</tr>
</tbody>
</table>

**Historical Dimension**
6 credits from a list of courses in Cultural Studies with an historical dimension:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 350</td>
<td>3</td>
<td>Studies in the History of Film 1</td>
</tr>
<tr>
<td>ENGL 351</td>
<td>3</td>
<td>Studies in the History of Film 2</td>
</tr>
<tr>
<td>ENGL 363</td>
<td>3</td>
<td>Studies in the History of Film 3</td>
</tr>
<tr>
<td>ENGL 374</td>
<td>3</td>
<td>Film Movement or Period</td>
</tr>
<tr>
<td>ENGL 451</td>
<td>3</td>
<td>A Period in Cinema</td>
</tr>
<tr>
<td>ENGL 480</td>
<td>3</td>
<td>Studies in History of Film 1</td>
</tr>
</tbody>
</table>

**400-Level Theory**
3 credits from a list of 400-level courses in Cultural Studies with a theoretical component:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 454</td>
<td>3</td>
<td>Topics in Cultural Studies and Gender</td>
</tr>
<tr>
<td>ENGL 479</td>
<td>3</td>
<td>Philosophy of Film</td>
</tr>
<tr>
<td>ENGL 484</td>
<td>3</td>
<td>Seminar in the Film</td>
</tr>
</tbody>
</table>
ENGL 487 (3) Cultural Icons
ENGL 488 (3) Special Topics / Communications and Mass Media 2
ENGL 489 (3) Culture and Critical Theory 1
ENGL 490 (3) Culture and Critical Theory 2
ENGL 492 (3) Image and Text
ENGL 497 (3) Seminar in Cultural Studies

Literature and/or Drama and Theory

12 credits in ENGL courses specific to English Literature and/or Drama and Theatre, of which at least 6 credits are at the 300 level or higher. Please consult the complementary course lists for the English Literature and Drama and Theatre programs for course choices.

Additional Cultural Studies

15 additional credits from the option's offerings which includes all the courses specifically listed in the Cultural Studies categories above and the courses listed below. Any ENGL course not on these Cultural Studies lists, such as courses in Literature, may not count toward the Honours English - Cultural Studies.

ENGL 280 (3) Introduction to Film as Mass Medium
ENGL 354 (3) Sexuality and Representation
ENGL 366 (3) Film Genre
ENGL 378 (3) Media and Culture
ENGL 379 (3) Film Theory
ENGL 380 (3) Non-Fic Media: Cinema, Television, Radio
ENGL 382 (3) International Cinema 1
ENGL 383 (3) Studies in Communications 1
ENGL 384 (3) Semiotics of Advertising
ENGL 385 (3) Topics in Literature and Film
ENGL 386 (3) Fans, Celebrities, Audiences
ENGL 388 (3) Studies in Popular Culture
ENGL 389 (3) Studies in Popular Culture
ENGL 390 (3) Political and Cultural Theory
ENGL 391 (3) Special Topics: Cultural Studies 1
ENGL 395 (3) Cultural and Theatre Studies
ENGL 397 (3) Feminist Approaches to Cultural Studies
ENGL 398 (3) Psychoanalytic Approaches to Cultural Studies
ENGL 476 (3) Alternative Approaches to Media 1
ENGL 482 (3) International Cinema 2
ENGL 585 (3) Cultural Studies: Film
ENGL 586 (3) Cultural Studies: Other Media
ENGL 587 (3) Theoretical Approaches to Cultural Studies

Revision, August 2011. End of revision.

3.11.17.15 Bachelor of Arts (B.A.) - Joint Honours Component English - Literature (36 credits)

Students who wish to study at the Honours level in two Arts disciplines may apply to combine Joint Honours program components from two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs". Applications to do a Joint Honours program in English and another subject in the Faculty of Arts should be submitted once a minimum of 9 credits, and no more than 18 credits, have been completed in English. There are normally two possible application dates for Joint Honours in English: either by the end of January (by which time first-term courses are completed and the grades are available), or at the same time as the Honours application date, typically in mid-April. (Only students who will
have completed more than 18 credits in English by the end of January may apply in the Fall.) Applications will be considered by the Department's Honours Committee on the basis of the student's program GPA, at a minimum of 3.50. The application form is available in the Department's General Office (Arts 155), and the specific submission requirements are described by that form.

The maintenance of a 3.50 program GPA is required for continuation in Joint Honours. Graduation with Joint Honours requires a minimum CGPA of 3.00, a minimum program GPA of 3.50, and a minimum mark of B+ on the Honours Essay. Graduation with First Class Joint Honours in English requires a minimum CGPA of 3.50, a minimum program GPA of 3.70, and a minimum mark of A on the Honours Essay.

Each academic year, there is a special adviser for Joint Honours students, and the receptionist in the General Office can provide their name and contact information. The Department's website http://www.mcgill.ca/english/ provides additional information on the Joint Honours program and applications, and this website should also be consulted prior to contacting the Adviser.

**Required Courses (6 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 311</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 360</td>
<td>3</td>
</tr>
</tbody>
</table>

**Complementary Courses (30 credits)**

30 credits selected as described below.

In addition to the 6-credit requirement for Advanced Study described below, all Joint Honours students’ programs of study shall include 6 credits of study at the 400 level or above. Students are encouraged to take courses at the 300 level and above.

Note on Topics Courses: The Department of English offers courses which change topic from academic year to academic year. Depending on the topic in a specific year, these courses may count toward different program requirements. At the time they register for a topics course, students should confirm with their program adviser the program requirement it fulfills for that academic year.

**Advanced Study**

6 credits of advanced study, in one of the following two forms A or B, in order of preference:

A) 6-credits of honours essay:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 491D1</td>
<td>3</td>
<td>Honours Essay</td>
</tr>
<tr>
<td>ENGL 491D2</td>
<td>3</td>
<td>Honours Essay</td>
</tr>
</tbody>
</table>

B) Two 3-credit 500-level courses selected in consultation with the student's adviser(s).

(In very rare cases, a third alternative may be approved at the discretion of the Joint Honours Adviser, but only when it is formally recommended for the joint subject according to the description of that Joint Honours program found in the Arts section of this publication. For example, Joint Honours with Anthropology allows the option of combining 3 credits of essay work with 3 credits in the joint subject to create a joint essay.)

**Pre-1800**

9 credits from a list of Pre-1800 literature courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 301</td>
<td>3</td>
<td>Earlier 18th Century Novel</td>
</tr>
<tr>
<td>ENGL 302</td>
<td>3</td>
<td>Restoration and 18th C. English Literature 1</td>
</tr>
<tr>
<td>ENGL 303</td>
<td>3</td>
<td>Restoration and 18th C. English Literature 2</td>
</tr>
<tr>
<td>ENGL 305</td>
<td>3</td>
<td>Renaissance English Literature 1</td>
</tr>
<tr>
<td>ENGL 307</td>
<td>3</td>
<td>Renaissance English Literature 2</td>
</tr>
<tr>
<td>ENGL 315</td>
<td>3</td>
<td>Shakespeare</td>
</tr>
<tr>
<td>ENGL 316</td>
<td>3</td>
<td>Milton</td>
</tr>
<tr>
<td>ENGL 340</td>
<td>3</td>
<td>History of the English Language</td>
</tr>
<tr>
<td>ENGL 342</td>
<td>3</td>
<td>Introduction to Old English</td>
</tr>
<tr>
<td>ENGL 347</td>
<td>3</td>
<td>Great Writings of Europe 1</td>
</tr>
<tr>
<td>ENGL 348</td>
<td>3</td>
<td>Great Writings of Europe 2</td>
</tr>
<tr>
<td>ENGL 349</td>
<td>3</td>
<td>English Literature and Folklore 1</td>
</tr>
</tbody>
</table>
ENGL 356 (3) Middle English
ENGL 357 (3) Chaucer - Canterbury Tales
ENGL 358 (3) Chaucer - Troilus and Criseyde
ENGL 400 (3) Earlier English Renaissance
ENGL 401 (3) Studies in the 17th Century
ENGL 403 (3) Studies in the 18th Century
ENGL 416 (3) Studies in Shakespeare
ENGL 452 (3) Studies in Old English
ENGL 456 (3) Middle English
ENGL 500 (3) Middle English
ENGL 501 (3) 16th Century
ENGL 502 (3) 17th Century
ENGL 503 (3) 18th Century
ENGL 516 (3) Shakespeare
ENGL 553 (3) Old English Literature

Theory
3 credits from a list of courses on Theory:
ENGL 317 (3) Theory of English Studies 1
ENGL 318 (3) Theory of English Studies 2
ENGL 319 (3) Theory of English Studies 3
ENGL 322 (3) Theories of the Text
ENGL 346 (3) Materiality and Sociology of Text
ENGL 352 (3) Theories of Difference

500 Level
3 credits of English (ENGL) courses at the 500-level.

Department Offerings
9 additional credits of English (ENGL) courses, preferably courses at the 300-level or above.

3.11.17.16 Bachelor of Arts (B.A.) - Joint Honours Component English - Drama and Theatre (36 credits)

Students who wish to study at the Honours level in two Arts disciplines may apply to combine Joint Honours program components from two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs". Applications to do a Joint Honours program in English and another subject in the Faculty of Arts should be submitted once a minimum of 9 credits, and no more than 18 credits, have been completed in English. There are normally two possible application dates for Joint Honours in English: either by the end of January (by which time first-term courses are completed and the grades are available), or at the same time as the Honours application date, typically in mid-April. (Only students who will have completed more than 18 credits in English by the end of January may apply in the Fall.) Applications will be considered by the Department's Honours Committee on the basis of the student's program GPA, at a minimum of 3.50. The application form is available in the Department's General Office (Arts 155), and the specific submission requirements are described by that form.

The maintenance of a 3.50 program GPA is required for continuation in Joint Honours. Graduation with Joint Honours requires a minimum CGPA of 3.00, a minimum program GPA of 3.50, and a minimum mark of B+ on the Honours Essay. Graduation with First Class Joint Honours in English requires a minimum CGPA of 3.50, a minimum program GPA of 3.70, and a minimum mark of A on the Honours Essay.

Each academic year, there is a special adviser for Joint Honours students, and the receptionist in the General Office can provide their name and contact information. The Department's website http://www.mcgill.ca/english/ provides additional information on the Joint Honours program and applications, and this website should also be consulted prior to contacting the Adviser.

Required Courses (9 credits)
Introduction to Theatre Studies (3)  ENGL 230
Introduction to Performance (3)  ENGL 269
The Poetics of Performance (3)  ENGL 355

Complementary Courses (27 credits)
27 credits selected as described below. In addition to the 6-credit requirement for Advanced Study described below, all Joint Honours students' programs of study shall include 6 credits of study at the 400 level or above.

Advanced Study
6 credits of advanced study, in one of the following two forms A or B, in order of preference:

A) 6 credits of honours essay:
   ENGL 491D1 (3) Honours Essay
   ENGL 491D2 (3) Honours Essay

B) Two 3-credit 500-level courses selected in consultation with the student's adviser(s).

(In very rare cases, a third alternative may be approved at the discretion of the Joint Honours Adviser, but only when it is formally recommended for the joint subject according to the description of that Joint Honours program found in the Arts section of this publication. For example, Joint Honours with Anthropology allows the option of combining 3 credits of essay work with 3 credits in the joint subject to create a joint essay.)

Theory Courses
3 credits from a list of theory courses:
   ENGL 317 (3) Theory of English Studies 1
   ENGL 318 (3) Theory of English Studies 2
   ENGL 319 (3) Theory of English Studies 3
   ENGL 322 (3) Theories of the Text
   ENGL 346 (3) Materiality and Sociology of Text
   ENGL 352 (3) Theories of Difference

Dramatic Literature
3 credits in Dramatic Literature:
For a list of courses for the 2011-2012 academic year, please consult the Department of English web page http://www.mcgill.ca/english/.

History of the Theatre
3 credits in History of the Theatre:
   ENGL 306 (3) Theatre History: Medieval and Early Modern
   ENGL 308 (3) English Renaissance Drama 1
   ENGL 309 (3) English Renaissance Drama 2
   ENGL 310 (3) Restoration and 18th Century Drama
   ENGL 314 (3) 20th Century Drama
   ENGL 370 (3) Theatre History: The Long Eighteenth Century
   ENGL 371 (3) Theatre History: 19th to 21st Centuries
   ENGL 416 (3) Studies in Shakespeare
   ENGL 467 (3) Advanced Studies in Theatre History
### Departmental Offerings

12 credits

#### 3.11.17 Bachelor of Arts (B.A.) - Joint Honours Component English - Cultural Studies (36 credits)

Students who wish to study at the Honours level in two Arts disciplines may apply to combine Joint Honours program components from two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs". Applications to do a Joint Honours program in English and another subject in the Faculty of Arts should be submitted once a minimum of 9 credits, and no more than 18 credits, have been completed in English. There are normally two possible application dates for Joint Honours in English: either by the end of January (by which time first-term courses are completed and the grades are available), or at the same time as the Honours application date, typically in mid-April. (Only students who will have completed more than 18 credits in English by the end of January may apply in the Fall.) Applications will be considered by the Department's Honours Committee on the basis of the student's program GPA, at a minimum of 3.50. The application form is available in the Department's General Office (Arts 155), and the specific submission requirements are described by that form.

The maintenance of a 3.50 program GPA is required for continuation in Joint Honours. Graduation with Joint Honours requires a minimum CGPA of 3.00, a minimum program GPA of 3.50, and a minimum mark of B+ on the Honours Essay. Graduation with First Class Joint Honours in English requires a minimum CGPA of 3.50, a minimum program GPA of 3.70, and a minimum mark of A on the Honours Essay.

Each academic year, there is a special adviser for Joint Honours students, and the receptionist in the General Office can provide their name and contact information. The Department’s website http://www.mcgill.ca/english/ provides additional information on the Joint Honours program and applications, and this website should also be consulted prior to contacting the Adviser.

#### Required Courses (9 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 275</td>
<td>(3)</td>
<td>Introduction to Cultural Studies</td>
</tr>
<tr>
<td>ENGL 276</td>
<td>(3)</td>
<td>Methods of Cultural Analysis</td>
</tr>
<tr>
<td>ENGL 359</td>
<td>(3)</td>
<td>The Poetics of the Image</td>
</tr>
</tbody>
</table>

#### Complementary Courses (27 credits)

27 credits selected as described below.

In addition to the 6-credit requirement for Advanced Study described below, all Joint Honours students' programs of study shall include 6 credits of study at the 400 level or above. Students are encouraged to take courses at the 300 level and above.

Note on Topics Courses: The Department of English offers courses which change topic from academic year to academic year. Depending on the topic in a specific year, these courses may count toward different program requirements. At the time they register for a topics course, students should confirm with their program adviser the program requirement it fulfills for that academic year.

#### Advanced Study

6 credits of advanced study, in one of the following two forms A or B, in order of preference:

A) 6 credits of honours essay:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 491D1</td>
<td>(3)</td>
<td>Honours Essay</td>
</tr>
<tr>
<td>ENGL 491D2</td>
<td>(3)</td>
<td>Honours Essay</td>
</tr>
</tbody>
</table>

B) Two 3-credit 500-level courses selected in consultation with the student's adviser(s).

(In very rare cases, a third alternative may be approved at the discretion of the Joint Honours Adviser, but only when it is formally recommended for the joint subject according to the description of that Joint Honours program found in the Arts section of this publication. For example, Joint Honours with Anthropology allows the option of combining 3 credits of essay work with 3 credits in the joint subject to create a joint essay.)

#### Major Figures
3 credits from a list of courses on Major Figures in Cultural Studies:

- ENGL 315 (3) Shakespeare
- ENGL 381 (3) A Film-Maker 1
- ENGL 418 (3) A Major Modernist Writer
- ENGL 481 (3) A Film-Maker 2
- ENGL 516 (3) Shakespeare

**Theory**

3 credits from a list of courses on Theory:

- ENGL 317 (3) Theory of English Studies 1
- ENGL 318 (3) Theory of English Studies 2
- ENGL 319 (3) Theory of English Studies 3
- ENGL 322 (3) Theories of the Text
- ENGL 346 (3) Materiality and Sociology of Text
- ENGL 352 (3) Theories of Difference

**Historical Dimension**

3 credits from a list of courses in Cultural Studies with an historical dimension:

- ENGL 350 (3) Studies in the History of Film 1
- ENGL 351 (3) Studies in the History of Film 2
- ENGL 363 (3) Studies in the History of Film 3
- ENGL 374 (3) Film Movement or Period
- ENGL 451 (3) A Period in Cinema
- ENGL 480 (3) Studies in History of Film 1

**Departmental Offerings**

12 additional credits of English (ENGL) courses, preferably courses at the 300 level or above.

**3.11.17.18 Admission Requirements to the Joint Honours Program – English Component**

Applications will be considered by the Department’s Honours Committee on the basis of the student’s program GPA, at a minimum of 3.50. The application form is available in the Department’s General Office (Arts 155), and the specific submission requirements are described by that form. The application will take some time to prepare, and allowance for such preparation (at least several weeks) must be made in order to meet the application deadline. Incomplete applications will not be considered.

Acceptance into Joint Honours English may be conditional on particular revisions to the Program Course Proposal to be submitted with the application form. This proposal goes on file in the General Office with the other submissions. Only course choices that are appropriate, given the nature of the Joint Honours program proposed, including the Honours Essay if applicable, will be approved. In order to graduate with Joint Honours, all subsequent course substitutions in the initially approved Joint Honours English program must be endorsed by the Joint Honours Adviser when they are made (i.e., at the start of each term) and entered on the Program Course Proposal with the Adviser’s initialled approval.

**3.11.18 English as a Second Language (ESL)**

Effective Summer 2011, the English as a Second Language courses (ESL) will be offered through the McGill Writing Centre (www.mcgill.ca/mwc). These courses will also have a new prefix, CESL. For a list of MWC courses that can be taken for credit in the Faculty of Arts, consult the Arts OASIS website (www.mcgill.ca/oasis).

**3.11.19 English for Academic Purposes (EAPR)**

Effective Summer 2011, the English for Academic Purposes course (EAPR 250) will be offered through the McGill Writing Centre (www.mcgill.ca/mwc). This course will also have a new prefix, CEAP. For a list of MWC courses that can be taken for credit in the Faculty of Arts, consult the Arts OASIS website (www.mcgill.ca/oasis).
3.11.20 Environment

Arts students who are interested in studying the environment should refer to McGill School of Environment > Bachelor of Arts (B.A.) - Minor Concentration Environment (18 credits) and McGill School of Environment > B.A. Faculty Program in Environment for more information.

3.11.21 French Language Centre (FLC)

3.11.21.1 Location

French Language Centre
688 Sherbrooke Street West, 2nd Floor
Montreal, Quebec H3A 3R1

Telephone: 514-398-4172
Fax: 514-398-5449
Website: www.mcgill.ca/ flc

3.11.21.2 About French as a Second Language

Courses in French as a Second Language are open to students in any program who need to develop their oral and written skills in the French language either for use in their future professional career or as preparation for more advanced studies in French linguistics, literature, civilization, translation, or in Canadian studies.

Arts Freshman students enrolled in the "En français" option may select up to a maximum of 18 credits from FRSL courses.

3.11.21.3 Admission and Registration

A Placement Test is required before admission to any FRSL course, including Beginners' French. All students should bring a photocopy of their transcript from high school or CEGEP. Departmental permission will be given after the student’s level has been determined by a placement test. Where students' levels in French make admission to this Department inappropriate, they will be directed to the Département de langue et littérature françaises.

No auditors are accepted.

Placement tests take place on August 25, 26, 29, and 31 from 9:00 a.m. to 11:30 a.m., and from 2:00 p.m. to 3:30 p.m., or until places are filled. The schedule and location are subject to change. For the location and most current information, check the FLC website at www.mcgill.ca/ flc.

Students must bring a headset or earbuds – the kind used with iPods, MP3 players, etc. Only a limited number of students can be tested at a time and they will be served on a first come basis.

Registration is limited and Departmental permission is absolutely required.

As numbers are limited in all courses, students who meet the required standard for any given course are admitted on a first-come, first-served basis, until the day before classes start. As of the first day of class, if places open, the Department will accept students who have not yet registered based upon the date their permit was issued with priority being given to the earliest date.

The Department reserves the right to transfer a student to another course if the level is inappropriate. Any absence from class during the Course Change period may lead to losing one’s place to another student.

3.11.21.4 French Language Centre (FLC) Faculty

Director
Loretta Hyrat

Lecturers

Loretta Hyrat; B.A., M.A. (McG.)
Denyse Laniel; B.A. (Montr.), M.A. (McG.), Cert. Ed. (C'dia)
Natallia Liakina; B.A. (Minsk Linguistic), M.A. (W. Ont.)
Suzanne Pellerin; B.A., M.A. (Laval), D.E.A. (Metz)
Jean-Yves Richard; B.A., M.A. (Laval)
Hélène Riel-Salvatore; B.A. (McG.), M.A. (Harv.)
Marion Vergues; B.A., M.A., D.E.A. (Montpellier)
3.11.22 French Language and Literature (FREN)

3.11.22.1 Coordonnées

Pavillon des Arts, bureau 265
853, rue Sherbrooke ouest
Montréal, Québec H3A 2T6

Téléphone : 514-398-6883
Télécopieur : 514-398-8557
Site web : http://litterature.mcgill.ca

3.11.22.2 Généralités : Langue et littérature françaises

Le Département de langue et littérature françaises offre un programme de cours qui couvre l'ensemble des littératures française et québécoise ainsi que d'autres aspects des études françaises : langue, traduction et création littéraire.

Le français est la seule langue de travail au Département. Tous les cours sont donnés en français. Les francophones constituent une proportion importante de notre clientèle, ce qui représente un avantage appréciable pour les étudiants qui ne sont pas de langue française, leur permettant de faire leurs études dans un milieu essentiellement français.

Pour ce qui est de la traduction, le programme offert à McGill a comme principale caractéristique de comporter un grand nombre de cours de littérature.

La plupart des cours peuvent être suivis par tout étudiant ayant les connaissances et les capacités voulues : le professeur jugera en dernier ressort. Il existe toutefois quelques restrictions.

1. L’admission aux cours pratiques de langue (Composition 1 et 2, Grammaire avancée, Traduction) est subordonnée à la réussite d'un test qui a pour but de déterminer le niveau de connaissance de l’étudiant et d’assurer que celui-ci sera dirigé vers un cours correspondant à ses besoins. Si la préparation de l’étudiant s’avère insuffisante pour lui permettre de suivre un cours au Département, un cours au Centre d’enseignement du français (French as a Second Language) lui sera conseillé.

2. L’admission aux programmes de Spécialisation en Traduction est subordonnée à la réussite d'un test.

3. Les étudiants extérieurs au Département peuvent s'inscrire à tous les cours offerts au Département sauf exceptions indiquées dans le libellé des cours.

3.11.22.3 Association générale des étudiants de langue et littérature françaises (AGELF)

Association regroupant les étudiants de 1er cycle (inscrits à au moins 6 crédits en français) qui a pour but de promouvoir les intérêts de tous ses membres.

3.11.22.4 French Language and Literature (FREN) Faculty

Emeritus Professors

Giuseppe Di Stefano; D. ès L.(Turin), Dipl. École Pratiques Hautes Ét., Dr. 3e Cy.(Paris-Sorbonne)
Jean-Pierre Duquette; L. ès L.(Montr.), Dr. 3e Cy.(Paris X)
Yvan Lamonde; B.A., M.A. Philo(Montr.) M.A., Ph.D.(Laval)
François Ricard; Dr. 3e Cy.(Aix-Marseille), M.A.(McG.) (James McGill Professor)

Yvon Rivard; B.A.(Laval), Dr. 3e Cy.(Aix-Marseille), M.A.(McG.)

Professors

Marc Angenot; L.Phil. & Lett., Dr.Phil. & Lett.(Brussels), F.R.S.C. (James McGill Professor)
Michel Biron; M.A.(Montr.), Dr. Phil. & Lett.(Belgique) (Canada Research Chair)
Isabelle Daunais; M.A., Ph.D.(McG.)
Diane Desrosiers-Bonin; M.A., Ph.D.(Montr.) (James McGill Professor)

Associate Professors

Arnaud Bernadet; M.A., D.E.A., Dr. 3e Cy.(Paris VIII)
Chantal Bouchard; M.A.(Montr.), Dr. 3e Cy.(Paris VII-Jussieu)
Annick Chapdelaine; M.A., D.E.A., Dr. 3e Cy.(Paris VII-Jussieu)
Frédéric Charbonneau; M.A., Ph.D.(Montr.) (William Dawson Scholar)
Associate Professors
Normand Doiron; M.A., Ph.D.(Montr.)
Jane Everett; M.A.(Car.), Ph.D.(McG.)
Gillian Lane-Mercier; M.A.(Montpellier), Ph.D.(McG.)

Assistant Professors
Isabelle Arseneau; M.A., Ph.D.(W. Ont.), Ph.D.(Montr.)
Pascal Brissette; M.A.(Montr.), Ph.D.(McG.)
Alain Farah; M.A.(UQAM), Ph.D.(UQAM/ENS Lyon)
Catherine Leclerc; M.A.(UQAM), Ph.D.(C’dia)

3.11.22.5 Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises - Langue française (18 crédits)

Concentration mineure qui ne peut pas être convertie en Concentration majeure.
Conditions d’admission : Aucune.

Cours complémentaires (18 crédits)

6 à 12 crédits choisis parmi les cours du Département de langue et littérature françaises, soit :

<table>
<thead>
<tr>
<th>Code</th>
<th>Crédits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 201</td>
<td>(3)</td>
<td>Composition 1</td>
</tr>
<tr>
<td>FREN 203</td>
<td>(3)</td>
<td>Composition 2</td>
</tr>
<tr>
<td>FREN 239</td>
<td>(3)</td>
<td>Stylistique comparée</td>
</tr>
<tr>
<td>FREN 245</td>
<td>(3)</td>
<td>Grammaire avancée</td>
</tr>
<tr>
<td>FREN 250</td>
<td>(3)</td>
<td>Littérature française avant 1800</td>
</tr>
<tr>
<td>FREN 251</td>
<td>(3)</td>
<td>Littérature française depuis 1800</td>
</tr>
<tr>
<td>FREN 252</td>
<td>(3)</td>
<td>Littérature québécoise</td>
</tr>
</tbody>
</table>

6 à 12 crédits choisis parmi les cours suivants du Centre d'enseignement du français :

<table>
<thead>
<tr>
<th>Code</th>
<th>Crédits</th>
<th>Description</th>
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<tbody>
<tr>
<td>FRSL 321D1</td>
<td>(3)</td>
<td>Oral and Written French 2</td>
</tr>
<tr>
<td>FRSL 321D2</td>
<td>(3)</td>
<td>Oral and Written French 2</td>
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<td>FRSL 325</td>
<td>(6)</td>
<td>Oral and Written French 2 - Intensive</td>
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<tr>
<td>FRSL 326</td>
<td>(3)</td>
<td>Découvrons le Québec en français</td>
</tr>
<tr>
<td>FRSL 431</td>
<td>(6)</td>
<td>Français fonctionnel avancé</td>
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<tr>
<td>FRSL 445</td>
<td>(3)</td>
<td>Français fonctionnel, écrit 1</td>
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<td>FRSL 446</td>
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<td>Français fonctionnel, écrit 2</td>
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<tr>
<td>FRSL 449</td>
<td>(3)</td>
<td>Le Français des médias</td>
</tr>
<tr>
<td>FRSL 455</td>
<td>(3)</td>
<td>Grammaire et création</td>
</tr>
</tbody>
</table>

3.11.22.6 Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises - Langue française et traduction (18 crédits)

Concentration mineure qui ne peut pas être convertie en Concentration majeure.
Conditions d’admission : Aucune.

Cours complémentaires (18 crédits)

9 crédits choisis parmi les cours suivants :
FREN 201 (3) Composition 1
FREN 203 (3) Composition 2
FREN 231 (3) Linguistique française
FREN 245 (3) Grammaire avancée

9 crédits choisis parmi les cours suivants :
FREN 239 (3) Stylistique comparée
FREN 244 (3) Traduction générale
FREN 341 (3) Traduction et recherche 1
FREN 346 (3) Traduction avancée
FREN 349 (3) Traduction et recherche 2
FREN 431 (3) Traduction et révision
FREN 441 (3) Traduction français-anglais

NOTE: les chiffres 1 et 2 n'indiquent pas des séquences; ils servent à désigner des cours à contenu variable.

3.11.22.7 Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises - Études et pratiques littéraires (18 crédits)
Concentration mineure convertible en Concentration majeure option Études et pratiques littéraires.
Conditions d'admission : Bonne connaissance du français lu, écrit et parlé; cette connaissance pourra être vérifiée à l'aide d'un test.

Cours complémentaires - Introduction (3 crédits)
3 crédits choisis parmi les cours d'introduction :
FREN 222 (3) Introduction aux études littéraires
FREN 250 (3) Littérature française avant 1800
FREN 251 (3) Littérature française depuis 1800
FREN 252 (3) Littérature québécoise

Cours complémentaires - Orientation (15 crédits)
En outre, l'étudiant(e) doit choisir entre deux orientations (streams) soit :
« Études littéraires », ou « Pratiques littéraires ».

Orientation - Études littéraires
Les 15 crédits de cours complémentaires se répartiront comme suit :
12 crédits choisis parmi les cours du bloc « Études littéraires » (au moins 3 de ces 12 crédits doivent porter sur la littérature avant 1800 et 3 autres sur la littérature depuis 1800)
3 crédits choisis parmi les cours du bloc « Pratiques littéraires »

Orientation - Pratiques littéraires
Les 15 crédits de cours complémentaires se répartiront comme suit :
12 crédits choisis dans au moins deux séries différentes du bloc « Pratiques littéraires »
3 crédits choisis parmi les cours du bloc « Études littéraires »

I. Bloc : « Études littéraires »

(a) Série Théorie littéraire
FREN 337 (3) Analyse et interprétation littéraires
FREN 391 (3) Doctrines et idées littéraires 1
FREN 490 (3) Théorie littéraire contemporaine
FREN 496 (3) Doctrines et idées littéraires 2

(b) Série Oeuvres et courants
FREN 355 (3) Littérature du 20e siècle 1
FREN 360 (3) La littérature du 19e siècle 1
FREN 362 (3) La littérature du 17e siècle 1
FREN 364 (3) La littérature du 18e siècle 1
FREN 366 (3) Littérature de la Renaissance 1
FREN 372 (3) Littérature québécoise 1
FREN 380 (3) Littérature de la francophonie
FREN 382 (3) Littérature québécoise 2
FREN 453 (3) Littérature du 20e siècle 2
FREN 455 (3) La littérature médiévale 1
FREN 456 (3) La littérature médiévale 2
FREN 457 (3) La littérature de la Renaissance 2
FREN 458 (3) La littérature du 17e siècle 2
FREN 459 (3) La littérature du 18e siècle 2
FREN 480 (3) Littérature québécoise contemporaine
FREN 482 (3) La littérature du 19e siècle 2
FREN 485 (3) Littérature française contemporaine

II. Bloc : << Pratiques littéraires >>

(a) Série Traduction
FREN 239 (3) Stylistique comparée
FREN 244 (3) Traduction générale
FREN 324 (3) Traduction littéraire 1
FREN 394 (3) Théorie de la traduction 1
FREN 425 (3) Théorie de la traduction 2
FREN 441 (3) Traduction français-anglais
FREN 443 (3) Traduction littéraire 2
FREN 492 (3) Histoire de la traduction
FREN 494 (3) Traduction spécialisée

(b) Série Création
FREN 240 (3) Atelier d'écriture poétique
FREN 340 (3) Atelier d'écriture narrative
FREN 440 (3) Atelier d'écriture dramatique

(c) Série Édition
FREN 376 (3) Correction et révision
FREN 377 (3) Pratiques de l'édition littéraire
Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises - Traduction (18 crédits)

Concentration mineure convertible en Concentration majeure option Traduction.

Conditions d’admission : Bonne connaissance du français et de l’anglais lus et écrits; cette connaissance est vérifiée à l’aide d’un test, à la suite duquel l’étudiant(e) peut se voir imposer de suivre le cours FREN 239 Stylistique comparée au trimestre d’automne de U1.

Cours obligatoires (6 crédits)
FREN 244 (3) Traduction générale
FREN 346 (3) Traduction avancée

Cours complémentaires (12 crédits)
6 à 9 crédits choisis parmi :
FREN 239 (3) Stylistique comparée
FREN 324 (3) Traduction littéraire 1
FREN 341 (3) Traduction et recherche 1
FREN 349 (3) Traduction et recherche 2
FREN 431 (3) Traduction et révision
FREN 443 (3) Traduction littéraire 2

3 à 6 crédits choisis parmi :
FREN 222 (3) Introduction aux études littéraires
FREN 250 (3) Littérature française avant 1800
FREN 251 (3) Littérature française depuis 1800
FREN 252 (3) Littérature québécoise

NOTE: les chiffres 1 et 2 n’indiquent pas des séquences; ils servent à désigner des cours à contenu variable.

Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises - Critique littéraire (18 crédits)

Concentration mineure qui ne peut pas être convertie en Concentration majeure.

Conditions d’admission : Connaissance suffisante du français lu, écrit et parlé; cette connaissance pourra être vérifiée à l’aide d’un test.

Cours obligatoire (3 crédits)
FREN 222 (3) Introduction aux études littéraires

Cours complémentaires (15 crédits)
12 crédits choisis parmi les cours suivants :
FREN 337 (3) Analyse et interprétation littéraires
FREN 391 (3) Doctrines et idées littéraires 1
FREN 394 (3) Théorie de la traduction 1
FREN 490 (3) Théorie littéraire contemporaine
FREN 496 (3) Doctrines et idées littéraires 2

3 crédits choisis parmi les cours de niveau 300 ou 400 du bloc « Études littéraires »
Bloc : « Études littéraires »

(a) Série Théorie littéraire
FREN 337 (3) Analyse et interprétation littéraires
FREN 391 (3) Doctrines et idées littéraires 1
FREN 490 (3) Théorie littéraire contemporaine
FREN 496 (3) Doctrines et idées littéraires 2

(b) Série Oeuvres et courants
FREN 355 (3) Littérature du 20e siècle 1
FREN 360 (3) La littérature du 19e siècle 1
FREN 362 (3) La littérature du 17e siècle 1
FREN 364 (3) La littérature du 18e siècle 1
FREN 366 (3) Littérature de la Renaissance 1
FREN 372 (3) Littérature québécoise 1
FREN 380 (3) Littérature de la francophonie
FREN 382 (3) Littérature québécoise 2
FREN 453 (3) Littérature du 20e siècle 2
FREN 455 (3) La littérature médiévale 1
FREN 456 (3) La littérature médiévale 2
FREN 457 (3) La littérature de la Renaissance 2
FREN 458 (3) La littérature du 17e siècle 2
FREN 459 (3) La littérature du 18e siècle 2
FREN 480 (3) Littérature québécoise contemporaine
FREN 482 (3) La littérature du 19e siècle 2
FREN 485 (3) Littérature française contemporaine

3.11.22.10 Bachelor of Arts (B.A.) - Concentration majeure langue et littérature françaises - Études et pratiques littéraires (36 crédits)

Conditions d'admission : Bonne connaissance du français lu, écrit et parlé; cette connaissance pourra être vérifiée à l'aide d'un test.

Cours obligatoires (12 crédits)
FREN 222 (3) Introduction aux études littéraires
FREN 333 (3) Thème de littérature d'Ancien Régime
FREN 444 (3) Thème de littérature moderne
FREN 450 (3) Thème de littérature québécoise

Cours complémentaires (24 crédits)
L'étudiant(e) doit choisir entre deux orientations (streams) soit :
« Études littéraires », ou « Pratiques littéraires ».

Orientation - Études littéraires
Les 24 crédits de cours complémentaires se répartiront comme suit :
18 crédits choisis parmi les cours du bloc « Études littéraires », comme suit :
6 crédits de la série Théorie littéraire
12 crédits de la série Oeuvres et courants (au moins 3 de ces 18 crédits doivent porter sur la littérature avant 1800 et 3 autres sur la littérature depuis 1800.)
6 crédits choisis parmi les cours du bloc « Pratiques littéraires »

**Orientation - Pratiques littéraires**

Les 24 crédits de cours complémentaires se répartiront comme suit :
18 crédits choisis parmi les cours du bloc « Pratiques littéraires », comme suit :
au moins 3 crédits de la série Traduction
au moins 3 crédits de la série Création
au moins 3 crédits de la série Édition
6 crédits choisis parmi les cours du bloc « Études littéraires » (au moins 3 de ces crédits doivent porter sur la littérature avant 1800)

I. Bloc : « Études littéraires »

(a) Série Théorie littéraire

<table>
<thead>
<tr>
<th>Code</th>
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<th>Titre</th>
</tr>
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<tbody>
<tr>
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<td>(3)</td>
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<td>FREN 391</td>
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<td>Doctrines et idées littéraires 1</td>
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<td>FREN 490</td>
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<td>FREN 496</td>
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(b) Série Oeuvres et courants

<table>
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<th>Crédits</th>
<th>Titre</th>
</tr>
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<td>FREN 362</td>
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<td>La littérature du 17e siècle 1</td>
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<td>(3)</td>
<td>La littérature du 18e siècle 1</td>
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<td>(3)</td>
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<td>(3)</td>
<td>Littérature québécoise 1</td>
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<tr>
<td>FREN 380</td>
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<td>(3)</td>
<td>La littérature médiévale 1</td>
</tr>
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<td>FREN 456</td>
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</tr>
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II. Bloc : « Pratiques littéraires »

(a) Série Traduction

<table>
<thead>
<tr>
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<tbody>
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<tr>
<td>FREN 244</td>
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<tr>
<td>FREN 324</td>
<td>(3)</td>
<td>Traduction littéraire</td>
</tr>
<tr>
<td>FREN 394</td>
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<td>Théorie de la traduction 1</td>
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</table>
### Théorie de la traduction 2 (3) FREN 425

### Traduction français-anglais (3) FREN 441

### Traduction littéraire 2 (3) FREN 443

### Histoire de la traduction (3) FREN 492

### Traduction spécialisée (3) FREN 494

#### (b) Série Création

<table>
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<td>FREN 340</td>
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#### (c) Série Édition

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<td>Correction et révision</td>
</tr>
<tr>
<td>FREN 377</td>
<td>(3)</td>
<td>Pratiques de l'édition littéraire</td>
</tr>
<tr>
<td>FREN 476</td>
<td>(3)</td>
<td>Le livre</td>
</tr>
</tbody>
</table>

### Bachelor of Arts (B.A.) - Concentration majeure langue et littérature françaises - Traduction (36 crédits)

Conditions d'admission : Bonne connaissance du français et de l'anglais lus et écrits; cette connaissance est vérifiée à l'aide d'un test, à la suite duquel l'étudiant(e) peut se voir imposer de suivre le cours FREN 239 Stylistique comparée au trimestre d'automne de U1.

#### Cours obligatoires (9 crédits)

<table>
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<tr>
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<tr>
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<td>Introduction aux études littéraires</td>
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<tr>
<td>FREN 244</td>
<td>(3)</td>
<td>Traduction générale</td>
</tr>
<tr>
<td>FREN 346</td>
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<td>Traduction avancée</td>
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</tbody>
</table>

#### Cours complémentaires (27 crédits)

18 crédits, répartis comme suit :

12 à 15 crédits choisis parmi les cours suivants :

<table>
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<tr>
<th>Code</th>
<th>Crédits</th>
<th>Description</th>
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<tbody>
<tr>
<td>FREN 239</td>
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<tr>
<td>FREN 341</td>
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<td>Traduction et recherche 1</td>
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<td>FREN 347</td>
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<td>Terminologie générale</td>
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<td>FREN 349</td>
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<tr>
<td>FREN 431</td>
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<td>FREN 443</td>
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<tr>
<td>FREN 494</td>
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</table>

3 à 6 crédits choisis parmi les cours suivants :

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<td>--------</td>
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**Bloc : « Études littéraires »**

6 crédits choisis parmi les cours du bloc « Études littéraires »

**Série Théorie littéraire**

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>FREN 337</td>
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<tr>
<td>FREN 391</td>
<td>(3)</td>
<td>Doctrines et idées littéraires 1</td>
</tr>
<tr>
<td>FREN 490</td>
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<tr>
<td>FREN 496</td>
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**Série Oeuvres et courants**

<table>
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<tbody>
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<tr>
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<td>(3)</td>
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<td>Littérature de la Renaissance 1</td>
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<td>FREN 372</td>
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<tr>
<td>FREN 485</td>
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</tbody>
</table>

**Bloc : « Pratiques littéraires »**

3 crédits choisis parmi les cours du bloc « Pratiques littéraires » (à l'exclusion de la série Traduction)

**Série Traduction**

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<tr>
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<tbody>
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<td>FREN 244</td>
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<td>FREN 394</td>
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<td>Théorie de la traduction 1</td>
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<td>FREN 425</td>
<td>(3)</td>
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<tr>
<td>FREN 441</td>
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<td>Traduction français-anglais</td>
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<td>FREN 443</td>
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<td>FREN 492</td>
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<tr>
<td>FREN 494</td>
<td>(3)</td>
<td>Traduction spécialisée</td>
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</tbody>
</table>
Série Création
FREN 240 (3) Atelier d'écriture poétique
FREN 340 (3) Atelier d'écriture narrative
FREN 440 (3) Atelier d'écriture dramatique

Série Édition
FREN 376 (3) Correction et révision
FREN 377 (3) Pratiques de l'édition littéraire
FREN 476 (3) Le livre

NOTE: les chiffres 1 et 2 n'indiquent pas des séquences; ils servent à désigner des cours à contenu variable.

3.11.22.12 Bachelor of Arts (B.A.) - Spécialisation en langue et littérature françaises - Études et pratiques littéraires (54 crédits)

Conditions d'admission : Bonne connaissance du français lu, écrit et parlé; cette connaissance pourra être vérifiée à l'aide d'un test.

L'obtention d'un baccalauréat avec Spécialisation ou Double Spécialisation est obligatoire pour l'admission dans les programmes de 2e et 3e cycles (maîtrise et doctorat).

En Spécialisation, les étudiants doivent conserver au minimum une moyenne de 3.00 pour l'ensemble des cours du programme et maintenir un CGPA de 3.00.

En plus des cours du programme de Spécialisation, les étudiants doivent faire une Concentration mineure (18 crédits) dans un département autre que celui de leur programme de Spécialisation.

Cours obligatoires (21 crédits)
FREN 222 (3) Introduction aux études littéraires
FREN 333 (3) Thème de littérature d'Ancien Régime
FREN 444 (3) Thème de littérature moderne
FREN 450 (3) Thème de littérature québécoise
FREN 464D1 (3) Projet de recherche individuel
FREN 464D2 (3) Projet de recherche individuel
FREN 595 (3) Séminaire avancé lettres françaises

Cours complémentaires (33 crédits)

I. Bloc : « Études littéraires »
18 crédits choisis parmi les cours du bloc « Études littéraires », comme suit :
6 crédits de la série Théorie littéraire
12 crédits de la série Oeuvres et courants (au moins 3 de ces 18 crédits doivent porter sur la littérature avant 1800 et 3 autres sur la littérature depuis 1800.)

(a) Série Théorie littéraire
FREN 337 (3) Analyse et interprétation littéraires
FREN 391 (3) Doctrines et idées littéraires 1
FREN 490 (3) Théorie littéraire contemporaine
FREN 496 (3) Doctrines et idées littéraires 2

(b) Série Oeuvres et courants
FREN 355 (3) Littérature du 20e siècle 1
II. Bloc : « Pratiques littéraires »

15 crédits choisis parmi les cours du bloc « Pratiques littéraires », comme suit :
au moins 3 crédits de la série Traduction
au moins 3 crédits de la série Création
au moins 3 crédits de la série Édition

(a) Série Traduction

FREN 239 (3) Stylistique comparée
FREN 244 (3) Traduction générale
FREN 324 (3) Traduction littéraire 1
FREN 394 (3) Théorie de la traduction 1
FREN 425 (3) Théorie de la traduction 2
FREN 441 (3) Traduction français-anglais
FREN 443 (3) Traduction littéraire 2
FREN 492 (3) Histoire de la traduction
FREN 494 (3) Traduction spécialisée

(b) Série Création

FREN 240 (3) Atelier d'écriture poétique
FREN 340 (3) Atelier d'écriture narrative
FREN 440 (3) Atelier d'écriture dramatique

(c) Série Édition

FREN 376 (3) Correction et révision
FREN 377 (3) Pratiques de l'édition littéraire
FREN 476 (3) Le livre
Bachelor of Arts (B.A.) - Spécialisation en langue et littérature françaises - Traduction (54 crédits)

Bonnie connaissance du français et de l'anglais lus et écrits; cette connaissance est vérifiée à l'aide d'un test; en cas de note insuffisante lors de ce test, l'étudiant(e) s'inscrira plutôt au programme de Concentration majeure (option Traduction) et suivra le cours FREN 239 Stylistique comparée au trimestre d'automne de U1. L'étudiant(e) pourra demander de nouveau l'autorisation de s'inscrire au programme de Spécialisation (option Traduction) à la fin de U1; cette autorisation lui sera accordée si ses notes dans chacun de ses cours de programme suivis en U1 sont égales ou supérieures à 75 % (B+).

L'obtention d'un baccalauréat avec Spécialisation ou Double Spécialisation est obligatoire pour l'admission dans les programmes de 2e et 3e cycles (maîtrise et doctorat).

En Spécialisation, les étudiants doivent conserver au minimum une moyenne de 3.00 pour l'ensemble des cours du programme et maintenir un CGPA de 3.00.

En plus des cours du programme de Spécialisation, les étudiants doivent faire une Concentration mineure (18 crédits) dans un département autre que celui de leur programme de Spécialisation.

Cours obligatoires (12 crédits)

<table>
<thead>
<tr>
<th>Code</th>
<th>Crédits</th>
<th>Titre</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 222</td>
<td>(3)</td>
<td>Introduction aux études littéraires</td>
</tr>
<tr>
<td>FREN 244</td>
<td>(3)</td>
<td>Traduction générale</td>
</tr>
<tr>
<td>FREN 346</td>
<td>(3)</td>
<td>Traduction avancée</td>
</tr>
<tr>
<td>FREN 431</td>
<td>(3)</td>
<td>Traduction et révision</td>
</tr>
</tbody>
</table>

Cours complémentaires (42 crédits)

24 crédits répartis comme suit :
12 à 18 crédits choisis parmi les cours suivants :

<table>
<thead>
<tr>
<th>Code</th>
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<th>Titre</th>
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<tbody>
<tr>
<td>FREN 239</td>
<td>(3)</td>
<td>Stylistique comparée</td>
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<tr>
<td>FREN 324</td>
<td>(3)</td>
<td>Traduction littéraire 1</td>
</tr>
<tr>
<td>FREN 341</td>
<td>(3)</td>
<td>Traduction et recherche 1</td>
</tr>
<tr>
<td>FREN 347</td>
<td>(3)</td>
<td>Terminologie générale</td>
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<td>FREN 349</td>
<td>(3)</td>
<td>Traduction et recherche 2</td>
</tr>
<tr>
<td>FREN 441</td>
<td>(3)</td>
<td>Traduction français-anglais</td>
</tr>
<tr>
<td>FREN 443</td>
<td>(3)</td>
<td>Traduction littéraire 2</td>
</tr>
<tr>
<td>FREN 494</td>
<td>(3)</td>
<td>Traduction spécialisée</td>
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</tbody>
</table>

6 à 12 crédits choisis parmi les cours suivants :

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<tr>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>FREN 231</td>
<td>(3)</td>
<td>Linguistique française</td>
</tr>
<tr>
<td>FREN 336</td>
<td>(3)</td>
<td>La langue française</td>
</tr>
<tr>
<td>FREN 394</td>
<td>(3)</td>
<td>Théorie de la traduction 1</td>
</tr>
<tr>
<td>FREN 425</td>
<td>(3)</td>
<td>Théorie de la traduction 2</td>
</tr>
<tr>
<td>FREN 434</td>
<td>(3)</td>
<td>Sociolinguistique du français</td>
</tr>
<tr>
<td>FREN 492</td>
<td>(3)</td>
<td>Histoire de la traduction</td>
</tr>
</tbody>
</table>

Bloc : « Études littéraires »

12 crédits choisis parmi les cours du bloc « Études littéraires »

(au moins 3 de ces 12 crédits doivent porter sur la littérature avant 1800

et 3 autres sur la littérature depuis 1800.)

Série Théorie littéraire

<table>
<thead>
<tr>
<th>Code</th>
<th>Crédits</th>
<th>Titre</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREN 337</td>
<td>(3)</td>
<td>Analyse et interprétation littéraires</td>
</tr>
</tbody>
</table>
FREN 391 (3) Doctrines et idées littéraires 1
FREN 490 (3) Théorie littéraire contemporaine
FREN 496 (3) Doctrines et idées littéraires 2

**Série Oeuvres et courants**

FREN 355 (3) Littérature du 20e siècle 1
FREN 360 (3) La littérature du 19e siècle 1
FREN 362 (3) La littérature du 17e siècle 1
FREN 364 (3) La littérature du 18e siècle 1
FREN 366 (3) Littérature de la Renaissance 1
FREN 372 (3) Littérature québécoise 1
FREN 380 (3) Littérature de la francophonie
FREN 382 (3) Littérature québécoise 2
FREN 453 (3) Littérature du 20e siècle 2
FREN 455 (3) La littérature médiévale 1
FREN 456 (3) La littérature médiévale 2
FREN 457 (3) La littérature de la Renaissance 2
FREN 458 (3) La littérature du 17e siècle 2
FREN 459 (3) La littérature du 18e siècle 2
FREN 480 (3) Littérature québécoise contemporaine
FREN 482 (3) La littérature du 19e siècle 2
FREN 485 (3) Littérature française contemporaine

**Bloc : « Pratiques littéraires »**

6 crédits choisis parmi les cours du bloc « Pratiques littéraires » (à l’exclusion de la série Traduction)

**Série Traduction**

FREN 239 (3) Stylistique comparée
FREN 244 (3) Traduction générale
FREN 324 (3) Traduction littéraire 1
FREN 394 (3) Théorie de la traduction 1
FREN 425 (3) Théorie de la traduction 2
FREN 441 (3) Traduction français-anglais
FREN 443 (3) Traduction littéraire 2
FREN 492 (3) Histoire de la traduction
FREN 494 (3) Traduction spécialisée

**Série Création**

FREN 240 (3) Atelier d'écriture poétique
FREN 340 (3) Atelier d'écriture narrative
FREN 440 (3) Atelier d'écriture dramatique

**Série Édition**
Correction et révision (3) FREN 376
Pratiques de l'édition littéraire (3) FREN 377
Le livre (3) FREN 476

NOTE: les chiffres 1 et 2 n'indiquent pas des séquences; ils servent à désigner des cours à contenu variable.

3.11.22.14 Bachelor of Arts (B.A.) - Double Spécialisation en langue et littérature françaises - Études et pratiques littéraires (36 crédits)

Conditions d'admission : Bonne connaissance du français lu, écrit et parlé; cette connaissance pourra être vérifiée à l'aide d'un test.

L'obtention d'un baccalauréat avec Spécialisation ou Double Spécialisation est obligatoire pour l'admission dans les programmes de 2e et 3e cycles (maîtrise et doctorat).

En Spécialisation, les étudiants doivent conserver au minimum une moyenne de 3.00 pour l'ensemble des cours du programme et maintenir un CGPA de 3.00.

Les étudiants qui souhaitent poursuivre leurs études en spécialisation dans deux domaines distincts peuvent s'inscrire dans deux départements de la Faculté des Arts (consulter la section de ladite Faculté, sous les rubriques "Overview of Programs Offered" et "Joint Honours Programs"). Ces étudiants devraient rencontrer un conseiller dans chacun des deux départements concernés, pour établir leur choix de cours et formuler leur projet de recherche interdisciplinaire, le cas échéant.

Cours obligatoires (21 crédits)

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<tr>
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<tr>
<td>FREN 222</td>
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<td>Introduction aux études littéraires</td>
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<tr>
<td>FREN 333</td>
<td>(3)</td>
<td>Thème de littérature d'Ancien Régime</td>
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<td>FREN 444</td>
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<td>FREN 450</td>
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<td>FREN 464D1</td>
<td>(3)</td>
<td>Projet de recherche individuel</td>
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<tr>
<td>FREN 464D2</td>
<td>(3)</td>
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<tr>
<td>FREN 595</td>
<td>(3)</td>
<td>Séminaire avancé lettres françaises</td>
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</table>

Cours complémentaires (15 crédits)

I. Bloc : « Études littéraires »

6 crédits choisis parmi les cours du bloc « Études littéraires », comme suit :

3 crédits de la série Théorie littéraire

3 crédits de la série Oeuvres et courants

(a) Série Théorie littéraire

<table>
<thead>
<tr>
<th>Code</th>
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<tr>
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<td>FREN 391</td>
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<td>Doctrines et idées littéraires 1</td>
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<td>FREN 490</td>
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<td>Théorie littéraire contemporaine</td>
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<tr>
<td>FREN 496</td>
<td>(3)</td>
<td>Doctrines et idées littéraires 2</td>
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(b) Série Oeuvres et courants

<table>
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<tr>
<th>Code</th>
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<tr>
<td>FREN 355</td>
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<td>FREN 360</td>
<td>(3)</td>
<td>La littérature du 19e siècle 1</td>
</tr>
<tr>
<td>FREN 362</td>
<td>(3)</td>
<td>La littérature du 17e siècle 1</td>
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<tr>
<td>FREN 364</td>
<td>(3)</td>
<td>La littérature du 18e siècle 1</td>
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<td>FREN 366</td>
<td>(3)</td>
<td>Littérature de la Renaissance</td>
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<td>FREN 372</td>
<td>(3)</td>
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</table>
**II. Bloc : « Pratiques littéraires »**

9 crédits choisis parmi les cours du bloc « Pratiques littéraires », comme suit :

3 crédits de la série Traduction
3 crédits de la série Création
3 crédits de la série Édition

(a) Série Traduction

<table>
<thead>
<tr>
<th>Cours</th>
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<th>Description</th>
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<tbody>
<tr>
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<td>Traduction générale</td>
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<td>FREN 324</td>
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<tr>
<td>FREN 394</td>
<td>3</td>
<td>Théorie de la traduction 1</td>
</tr>
<tr>
<td>FREN 425</td>
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<tr>
<td>FREN 441</td>
<td>3</td>
<td>Traduction français-anglais</td>
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<td>FREN 443</td>
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<td>Traduction littéraire 2</td>
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<tr>
<td>FREN 492</td>
<td>3</td>
<td>Histoire de la traduction</td>
</tr>
<tr>
<td>FREN 494</td>
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</table>

(b) Série Création

<table>
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<tr>
<th>Cours</th>
<th>Crédits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
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<td>3</td>
<td>Atelier d'écriture poétique</td>
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<tr>
<td>FREN 340</td>
<td>3</td>
<td>Atelier d'écriture narrative</td>
</tr>
<tr>
<td>FREN 440</td>
<td>3</td>
<td>Atelier d'écriture dramatique</td>
</tr>
</tbody>
</table>

(c) Série Édition

<table>
<thead>
<tr>
<th>Cours</th>
<th>Crédits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>FREN 376</td>
<td>3</td>
<td>Correction et révision</td>
</tr>
<tr>
<td>FREN 377</td>
<td>3</td>
<td>Pratiques de l'édition littéraire</td>
</tr>
<tr>
<td>FREN 476</td>
<td>3</td>
<td>Le livre</td>
</tr>
</tbody>
</table>

**3.11.22.15 Bachelor of Arts (B.A.) - Double Spécialisation en langue et littérature françaises - Traduction (36 crédits)**

Bonne connaissance du français et de l'anglais lus et écrits; cette connaissance est vérifiée à l'aide d'un test; en cas de note insuffisante lors de ce test, l'étudiant(e) s'inscrira plutôt au programme de Concentration majeure (option Traduction) et suivra le cours FREN 239 Stylistique comparée au trimestre d'automne de U1. L'étudiant(e) pourra demander de nouveau l'autorisation de s'inscrire au programme de Spécialisation (option Traduction) à la fin de U1; cette autorisation lui sera accordée si ses notes dans chacun de ses cours de programme suivis en U1 sont égales ou supérieures à 75 % (B+).
L'obtention d'un baccalauréat avec Spécialisation ou Double Spécialisation est obligatoire pour l'admission dans les programmes de 2e et 3e cycles (maîtrise et doctorat).

En Spécialisation, les étudiants doivent conserver au minimum une moyenne de 3.00 pour l'ensemble des cours du programme et maintenir un CGPA de 3.00.

Les étudiants qui souhaitent poursuivre leurs études en spécialisation dans deux domaines distincts peuvent s'inscrire dans deux départements de la Faculté des Arts (consulter la section de ladite Faculté, sous les rubriques “Overview of Programs Offered” et "Joint Honours Programs"). Ces étudiants devraient rencontrer un conseiller dans chacun des deux départements concernés, pour établir leur choix de cours et formuler leur projet de recherche interdisciplinaire, le cas échéant.

Cours obligatoires (12 crédits)

- FREN 222 (3) Introduction aux études littéraires
- FREN 231 (3) Linguistique française
- FREN 244 (3) Traduction générale
- FREN 346 (3) Traduction avancée

Cours complémentaires (24 crédits)

15 crédits, répartis comme suit :

12 crédits choisis parmi les cours suivants :

- FREN 239 (3) Stylistique comparée
- FREN 324 (3) Traduction littéraire 1
- FREN 341 (3) Traduction et recherche 1
- FREN 347 (3) Terminologie générale
- FREN 349 (3) Traduction et recherche 2
- FREN 431 (3) Traduction et révision
- FREN 441 (3) Traduction français-anglais
- FREN 443 (3) Traduction littéraire 2
- FREN 494 (3) Traduction spécialisée

3 crédits choisis parmi les cours suivants :

- FREN 336 (3) La langue française
- FREN 394 (3) Théorie de la traduction 1
- FREN 425 (3) Théorie de la traduction 2
- FREN 434 (3) Sociolinguistique du français
- FREN 492 (3) Histoire de la traduction

Bloc : « Études littéraires »

6 crédits choisis parmi les cours du bloc « Études littéraires »

(at least 3 of these credits must be on the literature before 1800
and 3 others on the literature since 1800)

Série Théorie littéraire

- FREN 337 (3) Analyse et interprétation littéraires
- FREN 391 (3) Doctrines et idées littéraires 1
- FREN 490 (3) Théorie littéraire contemporaine
- FREN 496 (3) Doctrines et idées littéraires 2
Série Oeuvres et courants

FREN 355 (3) Littérature du 20e siècle 1
FREN 360 (3) La littérature du 19e siècle 1
FREN 362 (3) La littérature du 17e siècle 1
FREN 364 (3) La littérature du 18e siècle 1
FREN 366 (3) Littérature de la Renaissance 1
FREN 372 (3) Littérature québécoise 1
FREN 380 (3) Littérature de la francophonie
FREN 382 (3) Littérature québécoise 2
FREN 453 (3) Littérature du 20e siècle 2
FREN 455 (3) La littérature médiévale 1
FREN 456 (3) La littérature médiévale 2
FREN 457 (3) La littérature de la Renaissance 2
FREN 458 (3) La littérature du 17e siècle 2
FREN 459 (3) La littérature du 18e siècle 2
FREN 480 (3) Littérature québécoise contemporaine
FREN 482 (3) La littérature du 19e siècle 2
FREN 485 (3) Littérature française contemporaine

Bloc : « Pratiques littéraires »

3 crédits choisis parmi les cours du bloc « Pratiques littéraires » (à l'exclusion de la série Traduction)

Série Traduction

FREN 239 (3) Stylistique comparée
FREN 244 (3) Traduction générale
FREN 324 (3) Traduction littéraire 1
FREN 394 (3) Théorie de la traduction 1
FREN 425 (3) Théorie de la traduction 2
FREN 441 (3) Traduction français-anglais
FREN 443 (3) Traduction littéraire 2
FREN 492 (3) Histoire de la traduction
FREN 494 (3) Traduction spécialisée

Série Création

FREN 240 (3) Atelier d'écriture poétique
FREN 340 (3) Atelier d'écriture narrative
FREN 440 (3) Atelier d'écriture dramatique

Série Édition

FREN 376 (3) Correction et révision
FREN 377 (3) Pratiques de l'édition littéraire
FREN 476 (3) Le livre
NOTE: les chiffres 1 et 2 n’indiquent pas des séquences; ils servent à désigner des cours à contenu variable.

3.11.22.16 French Language and Literature (FREN) Related Programs

3.11.22.16.1 Concentration majeure langue et littérature françaises – Linguistique du français (36 crédits)

Ce programme est aboli à partir de septembre 2009. Les étudiants inscrits à ce programme avant cette date doivent consulter le directeur des Études de 1er cycle qui les guidera sur la manière de compléter leur programme.

3.11.23 Geography (GEOG)

3.11.23.1 Location

Burnside Hall, Room 705
805 Sherbrooke Street West
Montreal, Quebec H3A 2K6

Telephone: 514-398-4951 (or leave a message: 514-398-4111)
Fax: 514-398-7437
Website: www.geog.mcgill.ca

3.11.23.2 About Geography

The Geography Department offers programs in both Arts and Science. See Faculty of Science > Geography (GEOG) for B.Sc. Geography programs, a list of teaching staff, an outline of the nature of Geography, and opportunities for study in this discipline.

Geography is a broad, holistic discipline; both a natural and a social science because it examines people and their environment and serves as a bridge between physical and cultural processes. Human Geography (a social science, thus B.A. programs) is concerned especially with the political, economic, social, and cultural processes and resource practices that create spatial patterns and define particular places. Physical Geography (B.Sc. programs) integrates disciplines such as climatology, geomorphology, geology, biology, hydrology, ecology, soil science, and even marine science. Whether considering greenhouse gas emissions, the spread of disease, or threats to biodiversity, in all cases geographers are interested in where things happen, why, and with what consequences.

Our graduates go on to careers in environmental consulting, social agencies, or non-governmental organizations. Skills in Geographic Information Science (GIS) are very marketable. Students are well prepared for graduate work in social sciences, urban planning, and environmental studies at leading schools.

3.11.23.3 Prerequisites

There are no departmental prerequisites for entrance to the B.A. Major concentrations or Honours programs in Geography. It is helpful for Arts students to include 6 credits of Mathematics in their CEGEP or pre-university programs. A student who has completed college or pre-university geography courses fully equivalent to those of first year university may, with the adviser’s approval, substitute other courses as part of the Major concentrations or Honours programs.

B.A. students in U0 are invited to take GEOG 205 for science credit and GEOG 200 for social science credit.

3.11.23.4 Bachelor of Arts (B.A.) - Minor Concentration Geography (18 credits)

The Minor Concentration Geography is designed to provide students in the Faculty of Arts with an overview of basic elements of human geography at the introductory and advanced level.

This Minor concentration may be expanded into the Major Concentration Geography, but not into the Major Concentration Geography (Urban Systems).

Complementary Courses (18 credits)

9 credits selected from:

- GEOG 201 (3) Introductory Geo-Information Science
- GEOG 203 (3) Environmental Systems
- GEOG 210 (3) Global Places and Peoples
- GEOG 216 (3) Geography of the World Economy
- GEOG 217 (3) Cities in the Modern World
- GEOG 272 (3) Earth's Changing Surface

9 credits from Geography (GEOG) courses at the 300 or 400 level.
3.11.23.5 Bachelor of Arts (B.A.) - Minor Concentration Geographic Information Systems (18 credits)

This Minor concentration is designed to provide students in the Faculty of Arts who have an interest in Geographic Information Systems (GIS) with a basic, yet comprehensive knowledge of concepts and methods relating to the analysis of geospatial data.

This Minor concentration may be expanded into the Major Concentration Geography, but not into the Major Concentration Geography (Urban Systems).

Required Courses (15 credits)

- GEOG 201 (3) Introductory Geo-Information Science
- GEOG 306 (3) Raster Geo-Information Science
- GEOG 307 (3) Socioeconomic Applications of GIS
- GEOG 308 (3) Principles of Remote Sensing
- GEOG 506 (3) Advanced Geographic Information Science

Complementary Courses (3 credits)

3 credits selected from:

- ATOC 309 (3) Weather Radars and Satellites
- COMP 557 (3) Fundamentals of Computer Graphics
- GEOG 535 (3) Remote Sensing and Interpretation
- GEOG 551 (3) Environmental Decisions
- URBP 505 (3) Geographic Information Systems

3.11.23.6 Bachelor of Arts (B.A.) - Minor Concentration Geography (Urban Systems) (18 credits)

This Minor concentration may be expanded into the Major Concentration Geography (Urban Systems).

Complementary Courses (18 credits)

18 credits selected as follows:

Group A

9-12 credits selected from:

- GEOG 210 (3) Global Places and Peoples
- GEOG 217 (3) Cities in the Modern World
- GEOG 303 (3) Health Geography
- GEOG 311 (3) Economic Geography
- GEOG 316 (3) Political Geography
- GEOG 331 (3) Urban Social Geography
- GEOG 494 (3) Urban Field Studies

Group B

6-9 credits selected from:

Architecture

Although Architecture courses have prerequisites, they are waived for Urban Systems students, but the course may not be taken before the year indicated:

U2 - ARCH 378;

U3 - ARCH 515, ARCH 527, ARCH 528, ARCH 529, and ARCH 550.

Note: ARCH 550 has the same content as CIVE 433 but requires an additional project.

ARCH 378 (3) Site Usage
Sustainable Design (3) ARCH 515
Civic Design (3) ARCH 527
History of Housing (3) ARCH 528
Housing Theory (3) ARCH 529
Urban Planning and Development (3) ARCH 550

Art History & Communication Studies
COMS 425 (3) Urban Culture & Everyday Life

Civil Engineering
CIVE 433 requires departmental permission to register (telephone: 514-398-6345).
CIVE 433 (3) Urban Planning
CIVE 540 (3) Urban Transportation Planning

Geography
GEOG 307 (3) Socioeconomic Applications of GIS

History
HIST 353 (3) History of Montreal
HIST 397 (3) Canada: Ethnicity, Migration

Political Science
POLI 318 (3) Comparative Local Government
POLI 321 (3) Issues: Canadian Public Policy
POLI 337 (3) Canadian Public Administration

Sociology
SOCI 230 (3) Sociology of Ethnic Relations
SOCI 333 (3) Social Stratification
SOCI 388 (3) Crime

Urban Planning
URBP 201 (3) Planning the 21st Century City
URBP 501 (2) Principles and Practice 1
URBP 506 (3) Environmental Policy and Planning

3.11.23.7 Bachelor of Arts (B.A.) - Major Concentration Geography (37 credits)
This program is designed to cover the main elements of human geography.

Required Courses (7 credits)
GEOG 201 (3) Introductory Geo-Information Science
GEOG 210 (3) Global Places and Peoples
GEOG 290 (1) Local Geographical Excursion

Complementary Courses (30 credits)
30 credits selected as follows:

Physical Geography
3 credits from:
GEOG 203 (3) Environmental Systems
GEOG 272 (3) Earth's Changing Surface

Statistics
3 credits from:
Note: Credit given for statistics courses is subject to certain restrictions. Students should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Arts.
BIOL 373 (3) Biometry
GEOG 202 (3) Statistics and Spatial Analysis
MATH 203 (3) Principles of Statistics 1
PSYC 204 (3) Introduction to Psychological Statistics
SOCI 350 (3) Statistics in Social Research

Field Courses
3 credits from:
Note: Field course offerings are determined each year in February.
GEOG 398 (3) Field Studies in Human Geography
GEOG 494 (3) Urban Field Studies
GEOG 495 (3) Field Studies - Physical Geography
GEOG 496 (3) Geographical Excursion
GEOG 497 (3) Ecology of Coastal Waters
GEOG 499 (3) Subarctic Field Studies

Analysis and Methodology
3 credits from:
GEOG 306 (3) Raster Geo-Information Science
GEOG 307 (3) Socioeconomic Applications of GIS
GEOG 308 (3) Principles of Remote Sensing
GEOG 351 (3) Quantitative Methods
GEOG 506 (3) Advanced Geographic Information Science

Geography
The remaining 18 credits are to be selected from Geography (GEOG) courses excluding GEOG 200 and GEOG 205. Of these 18 credits, at least 3 credits must be at the 400 level or above.
3.11.23.8 Bachelor of Arts (B.A.) - Major Concentration Geography (Urban Systems) (36 credits)

This interdisciplinary concentration exposes students to the various approaches to urban studies in many disciplines. Students should observe the levels indicated by course numbers: 200-level are first year (U1); 300-level, second year (U2); 400- or 500-level, third year (U3).

For students majoring in Urban Systems, the total number of credits permitted outside Arts and Science is 30 credits. Faculty of Arts regulations about "Courses Outside the Faculties of Arts and of Science" may be found with the Arts guidelines for "Course Requirements".

**Required Courses (12 credits)**

- GEOG 201 (3) Introductory Geo-Information Science
- GEOG 217 (3) Cities in the Modern World
- GEOG 351 (3) Quantitative Methods
- GEOG 494 (3) Urban Field Studies

**Complementary Courses (24 credits)**

24 credits selected as follows:

**Statistics**

3 credits from:

Note: Credit given for statistics courses is subject to certain restrictions. Students should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Arts.

- BIOL 373 (3) Biometry
- GEOG 202 (3) Statistics and Spatial Analysis
- MATH 203 (3) Principles of Statistics 1
- PSYC 204 (3) Introduction to Psychological Statistics
- SOCI 350 (3) Statistics in Social Research

21 credits from the course lists below:

**Geography**

* Students can choose one only from GEOG 210, GEOG 216 or GEOG 221.

- GEOG 210 (3) Global Places and Peoples
- GEOG 216 (3) Geography of the World Economy
- GEOG 221 (3) Environment and Health
- GEOG 290 (1) Local Geographical Excursion
- GEOG 303 (3) Health Geography
- GEOG 306 (3) Raster Geo-Information Science
- GEOG 307 (3) Socioeconomic Applications of GIS
- GEOG 311 (3) Economic Geography
- GEOG 316 (3) Political Geography
- GEOG 331 (3) Urban Social Geography
- GEOG 504 (3) Industrial Restructuring - Geographic Implications
- GEOG 507 (3) Advanced Social Geography
- GEOG 511 (3) Advanced Political Geography

**Architecture**
Although Architecture courses have prerequisites, they are waived for Urban Systems students, but the course may not be taken before the year indicated:

U2 - ARCH 378;
U3 - ARCH 515, ARCH 517, ARCH 520, ARCH 527, ARCH 528, ARCH 529, ARCH 550, ARCH 561, ARCH 562, ARCH 564, ARCH 566.

Note: ARCH 550 has the same content as CIVE 433 but requires an additional project.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
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</thead>
<tbody>
<tr>
<td>ARCH 378</td>
<td>3</td>
<td>Site Usage</td>
</tr>
<tr>
<td>ARCH 515</td>
<td>3</td>
<td>Sustainable Design</td>
</tr>
<tr>
<td>ARCH 517</td>
<td>3</td>
<td>Sustainable Residential Development</td>
</tr>
<tr>
<td>ARCH 520</td>
<td>3</td>
<td>Montreal: Urban Morphology</td>
</tr>
<tr>
<td>ARCH 527</td>
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<td>Civic Design</td>
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<tr>
<td>ARCH 528</td>
<td>3</td>
<td>History of Housing</td>
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<tr>
<td>ARCH 529</td>
<td>3</td>
<td>Housing Theory</td>
</tr>
<tr>
<td>ARCH 550</td>
<td>3</td>
<td>Urban Planning and Development</td>
</tr>
<tr>
<td>ARCH 561</td>
<td>3</td>
<td>Affordable Housing Seminar 1</td>
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<tr>
<td>ARCH 562</td>
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<td>Affordable Housing Seminar 2</td>
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<td>ARCH 564</td>
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<td>Design for Development</td>
</tr>
<tr>
<td>ARCH 566</td>
<td>3</td>
<td>Cultural Landscapes Seminar</td>
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**Art History & Communication Studies**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
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<tbody>
<tr>
<td>COMS 425</td>
<td>3</td>
<td>Urban Culture &amp; Everyday Life</td>
</tr>
</tbody>
</table>

**Civil Engineering**

Note: CIVE 433 has the same content as ARCH 550, but has limited enrolment and departmental permission is required.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CIVE 433</td>
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<td>Urban Planning</td>
</tr>
<tr>
<td>CIVE 540</td>
<td>3</td>
<td>Urban Transportation Planning</td>
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**History**

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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>HIST 353</td>
<td>3</td>
<td>History of Montreal</td>
</tr>
<tr>
<td>HIST 397</td>
<td>3</td>
<td>Canada: Ethnicity, Migration</td>
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</table>

**Management**

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<tr>
<th>Course Code</th>
<th>Credits</th>
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<tbody>
<tr>
<td>FINE 445</td>
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<td>Real Estate Finance</td>
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**Political Science**

<table>
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<tr>
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<tbody>
<tr>
<td>POLI 318</td>
<td>3</td>
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</tr>
<tr>
<td>POLI 321</td>
<td>3</td>
<td>Issues: Canadian Public Policy</td>
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<tr>
<td>POLI 337</td>
<td>3</td>
<td>Canadian Public Administration</td>
</tr>
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</table>

**Sociology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
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</thead>
<tbody>
<tr>
<td>SOCI 230</td>
<td>3</td>
<td>Sociology of Ethnic Relations</td>
</tr>
<tr>
<td>SOCI 333</td>
<td>3</td>
<td>Social Stratification</td>
</tr>
<tr>
<td>SOCI 388</td>
<td>3</td>
<td>Crime</td>
</tr>
</tbody>
</table>
Urban Planning

URBP 201 (3) Planning the 21st Century City
URBP 501 (2) Principles and Practice 1
URBP 504 (3) Planning for Active Transportation
URBP 505 (3) Geographic Information Systems
URBP 506 (3) Environmental Policy and Planning
URBP 530 (3) Urban Environmental Planning
URBP 536 (1) Transportation Seminar 1
URBP 537 (1) Transportation Seminar 2
URBP 538 (1) Transportation Seminar 3

3.11.23.9 Bachelor of Arts (B.A.) - Honours Geography (61 credits)

The B.A. Honours Geography program is more concentrated and focused than the Major concentration.

In addition to the Faculty of Arts requirement that Honours students maintain a minimum CGPA of 3.00, students in a Geography Honours program must maintain a program GPA of at least 3.30 and complete a 6-credit Honours thesis. Honours students are encouraged to participate in 500-level seminars with graduate students.

Required Courses (16 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tr>
<td>GEOG 201</td>
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<td>Introductory Geo-Information Science</td>
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<tr>
<td>GEOG 290</td>
<td>1</td>
<td>Local Geographical Excursion</td>
</tr>
<tr>
<td>GEOG 351</td>
<td>3</td>
<td>Quantitative Methods</td>
</tr>
<tr>
<td>GEOG 381</td>
<td>3</td>
<td>Geographic Thought and Practice</td>
</tr>
<tr>
<td>GEOG 491D1</td>
<td>3</td>
<td>Honours Research</td>
</tr>
<tr>
<td>GEOG 491D2</td>
<td>3</td>
<td>Honours Research</td>
</tr>
</tbody>
</table>

Complementary Courses (45 credits)

45 credits selected as follows:

Introductory

12 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 203</td>
<td>3</td>
<td>Environmental Systems</td>
</tr>
<tr>
<td>GEOG 210</td>
<td>3</td>
<td>Global Places and Peoples</td>
</tr>
<tr>
<td>GEOG 216</td>
<td>3</td>
<td>Geography of the World Economy</td>
</tr>
<tr>
<td>GEOG 217</td>
<td>3</td>
<td>Cities in the Modern World</td>
</tr>
<tr>
<td>GEOG 272</td>
<td>3</td>
<td>Earth's Changing Surface</td>
</tr>
</tbody>
</table>

Statistics

3 credits from:

Note: Credit given for statistics courses is subject to certain restrictions. Students should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Arts.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 373</td>
<td>3</td>
<td>Biometry</td>
</tr>
<tr>
<td>GEOG 202</td>
<td>3</td>
<td>Statistics and Spatial Analysis</td>
</tr>
<tr>
<td>MATH 203</td>
<td>3</td>
<td>Principles of Statistics 1</td>
</tr>
<tr>
<td>PSYC 204</td>
<td>3</td>
<td>Introduction to Psychological Statistics</td>
</tr>
</tbody>
</table>
Field Courses

3 credits from:

Note: Field course offerings are determined each year in February.

GEOG 398 (3) Field Studies in Human Geography
GEOG 494 (3) Urban Field Studies
GEOG 495 (3) Field Studies - Physical Geography
GEOG 496 (3) Geographical Excursion
GEOG 497 (3) Ecology of Coastal Waters
GEOG 499 (3) Subarctic Field Studies

Additional Geography

18 credits of Geography (GEOG) courses selected in consultation with the Program Adviser.

Outside Geography

9 credits at the 300 or 400 level or above of courses taught by units other than Geography selected from the humanities, social and physical sciences or engineering that have been approved by the Program Adviser as related to the student's focus within Geography.

3.11.23.10 Bachelor of Arts (B.A.) - Honours Urban Systems (60 credits)

The B.A. Honours Urban Systems program is more concentrated and focused than the Major concentration. In addition to the Faculty of Arts requirement that Honours students maintain a minimum CGPA of 3.00, students in a Geography Honours program must maintain a program GPA of at least 3.30 and complete a 6-credit Honours thesis. Honours students are encouraged to participate in 500-level seminars with graduate students.

Students should observe the levels indicated by course numbers: 200-level are first year (U1); 300-level, second year (U2); 400- or 500-level, third year (U3).

For students in the Honours Urban Systems, the total number of credits permitted outside Arts and Science is 30. Faculty of Arts regulations about "Courses Outside the Faculties of Arts and of Science" may be found with the Arts guidelines for "Course Requirements".

Required Courses (21 credits)

GEOG 201 (3) Introductory Geo-Information Science
GEOG 217 (3) Cities in the Modern World
GEOG 351 (3) Quantitative Methods
GEOG 381 (3) Geographic Thought and Practice
GEOG 491D1 (3) Honours Research
GEOG 491D2 (3) Honours Research
GEOG 494 (3) Urban Field Studies

Complementary Courses (39 credits)

39 credits selected as follows:

Statistics

3 credits from:

Note: Credit given for statistics courses is subject to certain restrictions. Students should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Arts.

BIOL 373 (3) Biometry
GEOG 202 (3) Statistics and Spatial Analysis
MATH 203 (3) Principles of Statistics 1
PSYC 204  (3)  Introduction to Psychological Statistics
SOCI 350  (3)  Statistics in Social Research

**Geography**

12 credits from the following Geography (GEOG) courses:

* Students can choose one only from GEOG 210, GEOG 216, and GEOG 221.

GEOG 203  (3)  Environmental Systems
GEOG 210*  (3)  Global Places and Peoples
GEOG 216*  (3)  Geography of the World Economy
GEOG 221*  (3)  Environment and Health
GEOG 303  (3)  Health Geography
GEOG 307  (3)  Socioeconomic Applications of GIS
GEOG 311  (3)  Economic Geography
GEOG 316  (3)  Political Geography
GEOG 331  (3)  Urban Social Geography

18 credits from the following courses:

**Architecture**

Although Architecture courses have prerequisites, they are waived for Urban Systems students, but the course may not be taken before the year indicated:

U2 - ARCH 378
U3 - ARCH 515, ARCH 517, ARCH 527, ARCH 528, ARCH 529, ARCH 550, ARCH 561, ARCH 562, ARCH 564, ARCH 566

Note: ARCH 550 has the same content as CIVE 433 but requires an additional project.

ARCH 378  (3)  Site Usage
ARCH 515  (3)  Sustainable Design
ARCH 517  (3)  Sustainable Residential Development
ARCH 527  (3)  Civic Design
ARCH 528  (3)  History of Housing
ARCH 529  (3)  Housing Theory
ARCH 550  (3)  Urban Planning and Development
ARCH 561  (3)  Affordable Housing Seminar 1
ARCH 562  (3)  Affordable Housing Seminar 2
ARCH 564  (3)  Design for Development
ARCH 566  (3)  Cultural Landscapes Seminar

**Art History & Communication Studies**

COMS 425  (3)  Urban Culture & Everyday Life

**Civil Engineering**

Note: CIVE 433 has the same content as ARCH 550, but has limited enrolment and departmental permission is required.

CIVE 433  (3)  Urban Planning
CIVE 540  (3)  Urban Transportation Planning
Geography

GEOG 504 (3) Industrial Restructuring - Geographic Implications
GEOG 507 (3) Advanced Social Geography
GEOG 511 (3) Advanced Political Geography

History

HIST 353 (3) History of Montreal
HIST 397 (3) Canada: Ethnicity, Migration

Management

FINE 445 (3) Real Estate Finance

Political Science

POLI 318 (3) Comparative Local Government
POLI 321 (3) Issues: Canadian Public Policy
POLI 337 (3) Canadian Public Administration

Sociology

SOCI 230 (3) Sociology of Ethnic Relations
SOCI 333 (3) Social Stratification
SOCI 388 (3) Crime

Urban Planning

URBP 201 (3) Planning the 21st Century City
URBP 501 (2) Principles and Practice 1
URBP 504 (3) Planning for Active Transportation
URBP 505 (3) Geographic Information Systems
URBP 506 (3) Environmental Policy and Planning
URBP 530 (3) Urban Environmental Planning
URBP 536 (1) Transportation Seminar 1
URBP 537 (1) Transportation Seminar 2
URBP 538 (1) Transportation Seminar 3

Remaining Courses

6 credits must be taken at or above the 300 level.
Courses may be selected from the lists above or from outside the program in consultation with the student's adviser.

3.11.23.11 Bachelor of Arts (B.A.) - Joint Honours Component Geography (36 credits)

Students wishing to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see “Overview of Programs Offered” and “Joint Honours Programs”.

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable).

In addition to the Faculty requirement that Joint Honours students maintain a minimum CGPA of at least 3.00, students in a Joint Honours Component Geography program must maintain a program GPA of at least 3.30.
Required Courses (9 credits)
GEOG 201 (3) Introductory Geo-Information Science
GEOG 351 (3) Quantitative Methods
GEOG 381 (3) Geographic Thought and Practice

Complementary Courses (27 credits)
27 credits selected as follows:

Introductory
12 credits of introductory courses from:
GEOG 203 (3) Environmental Systems
GEOG 210 (3) Global Places and Peoples
GEOG 216 (3) Geography of the World Economy
GEOG 217 (3) Cities in the Modern World
GEOG 272 (3) Earth's Changing Surface

Statistics
3 credits from:
Note: Credit given for statistics courses is subject to certain restrictions. Students should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Arts.
BIOL 373 (3) Biometry
GEOG 202 (3) Statistics and Spatial Analysis
MATH 203 (3) Principles of Statistics 1
PSYC 204 (3) Introduction to Psychological Statistics
SOCI 350 (3) Statistics in Social Research

Research
3-6 credits of research courses. Where both departments require an Honours Thesis, the student has the option of submitting the thesis to either department. If the thesis is submitted to the other department, then the student must register for GEOG 492D1/GEOG 492D2. In some cases, it is required that the thesis be jointly supervised by faculty of both departments.
GEOG 491D1 (3) Honours Research
GEOG 491D2 (3) Honours Research
GEOG 492D1 (1.5) Joint Honours Research
GEOG 492D2 (1.5) Joint Honours Research

Remaining Geography
6-9 credits from a coherent set of Geography (GEOG) courses approved by the Program Adviser. Including a field course is desirable.

3.11.23.12 Geography (GEOG) Related Programs and Study Semesters
3.11.23.12.1 African Field Study Semester
The Department of Geography (Prof. Thom Meredith), Faculty of Science, coordinates the 15-credit interdisciplinary African Field Study Semester. For further information, contact Martine Dolmière, Internship & Field Studies Officer, 514-398-1063; see Field Studies and Study Abroad > African Field Study Semester.

3.11.23.12.2 Panama Field Study Semester
The program is a joint venture between McGill University and the Smithsonian Tropical Research Institute (STRI) in Panama. For more information, see Field Studies and Study Abroad > Panama Field Study Semester.
### Geography Courses of Most Interest to Arts Students

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>GEOG 200</td>
<td>3</td>
<td>Geographic Perspectives: World Environmental Problems</td>
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<tr>
<td>GEOG 201</td>
<td>3</td>
<td>Introductory Geo-Information Science</td>
</tr>
<tr>
<td>GEOG 202</td>
<td>3</td>
<td>Statistics and Spatial Analysis</td>
</tr>
<tr>
<td>GEOG 205</td>
<td>3</td>
<td>Global Change: Past, Present and Future</td>
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<tr>
<td>GEOG 210</td>
<td>3</td>
<td>Global Places and Peoples</td>
</tr>
<tr>
<td>GEOG 216</td>
<td>3</td>
<td>Geography of the World Economy</td>
</tr>
<tr>
<td>GEOG 217</td>
<td>3</td>
<td>The Canadian City</td>
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<tr>
<td>GEOG 221</td>
<td>3</td>
<td>Environment and Health</td>
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<td>GEOG 290</td>
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<td>Local Geographical Excursion</td>
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<td>GEOG 300</td>
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<td>Human Ecology in Geography</td>
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<td>GEOG 301</td>
<td>3</td>
<td>Geography of Nunavut</td>
</tr>
<tr>
<td>GEOG 302</td>
<td>3</td>
<td>Environmental Management 1</td>
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<td>GEOG 303</td>
<td>3</td>
<td>Health Geography</td>
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<td>GEOG 306</td>
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<td>Raster Geo-Information Science</td>
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<td>GEOG 307</td>
<td>3</td>
<td>Socioeconomic Applications of GIS</td>
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<td>GEOG 308</td>
<td>3</td>
<td>Principles of Remote Sensing</td>
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<td>GEOG 309</td>
<td>3</td>
<td>Geography of Canada</td>
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<td>GEOG 310</td>
<td>3</td>
<td>Development and Livelihoods</td>
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<td>GEOG 311</td>
<td>3</td>
<td>Economic Geography</td>
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<td>GEOG 316</td>
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<td>Political Geography</td>
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<td>GEOG 331</td>
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<td>Urban Social Geography</td>
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<td>GEOG 351</td>
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<td>Geography of Underdevelopment: Current Problems</td>
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<tr>
<td>GEOG 494</td>
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<td>GEOG 496</td>
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<td>GEOG 500</td>
<td>3</td>
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<td>GEOG 501</td>
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<td>GEOG 502</td>
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<td>GEOG 503</td>
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<td>Advanced Topics in Health Geography</td>
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<td>GEOG 504</td>
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<td>GEOG 506</td>
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<td>GEOG 507</td>
<td>3</td>
<td>Advanced Social Geography</td>
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<tr>
<td>GEOG 508</td>
<td>3</td>
<td>Resources, People, and Power</td>
</tr>
</tbody>
</table>
3.11.24 German Studies (GERM)

### 3.11.24.1 Location

688 Sherbrooke Street West, Suite 425  
Montreal, Quebec H3A 3R1

Telephone: 514-398-3650  
Fax: 514-398-1748  
Email: german.studies@mcgill.ca  
Website: www.mcgill.ca/german

### 3.11.24.2 About German Studies

With faculty members working at the forefront of literary, media, and cultural studies, the Department of German Studies immerses students both in the rich literary traditions of German-language literature and in the innovative directions of transdisciplinary research. With our multiple major, minor, honors and joint honors programs, we can accommodate a broad range of student interests from 18th-century Enlightenment to questions of migration and multiculturalism in contemporary German culture. While our department offers a wide spectrum of courses in language, literature and culture, our particular strengths lie in philosophy, critical theory, cultural studies, philology, cinema, and media studies. Students in our department receive close attention and individual mentoring in both their academic and professional training. We also consider German Studies to be part of a broader humanistic endeavour and encourage students to draw on the wealth of faculty working on relevant topics both at McGill and the many other Montreal universities in departments and programs such as History, Philosophy, Music, Art History and Communications, Jewish Studies, English, and other national literatures.

### 3.11.24.3 Prerequisites for Literature Courses

The prerequisite for all literature courses taught in German is GERM 325, or equivalent, or permission of the Department.

### 3.11.24.4 Topical Listings

#### Language

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>GERM 200</td>
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<tr>
<td>GERM 202</td>
<td>6</td>
<td>German Language, Beginners’</td>
</tr>
<tr>
<td>GERM 203</td>
<td>6</td>
<td>German for Reading</td>
</tr>
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<td>GERM 307</td>
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</tr>
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<td>GERM 325</td>
<td>6</td>
<td>German Language - Intensive Advanced</td>
</tr>
<tr>
<td>GERM 316</td>
<td>3</td>
<td>German: Analytic Study of Texts</td>
</tr>
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<td>GERM 330</td>
<td>3</td>
<td>Landeskunde</td>
</tr>
<tr>
<td>GERM 336</td>
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<td>GERM 341</td>
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<td>Essay Writing</td>
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### Literature and Culture

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<td>Methods of Literary Analysis</td>
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<td>German Literature - 19th Century 3</td>
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<td>20th Century Literature Topics</td>
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<td>GERM 380</td>
<td>(3)</td>
<td>18th Century German Literature</td>
</tr>
<tr>
<td>GERM 450</td>
<td>(3)</td>
<td>Classical Period in German Literature</td>
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<td>GERM 451</td>
<td>(3)</td>
<td>German Romanticism</td>
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<tr>
<td>GERM 511</td>
<td>(3)</td>
<td>Middle High German Literature</td>
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<tr>
<td>GERM 561</td>
<td>(3)</td>
<td>German Literature: Baroque</td>
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<tr>
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### Literature and Culture in Translation

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<td>(3)</td>
<td>FYS: Images of Otherness</td>
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<td>GERM 259</td>
<td>(3)</td>
<td>Introduction to German Literature 1</td>
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<td>GERM 260</td>
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<td>GERM 355</td>
<td>(3)</td>
<td>Nietzsche and Wagner</td>
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<tr>
<td>GERM 357</td>
<td>(3)</td>
<td>German Culture in European Context</td>
</tr>
<tr>
<td>GERM 358</td>
<td>(3)</td>
<td>Franz Kafka</td>
</tr>
<tr>
<td>GERM 359</td>
<td>(3)</td>
<td>Bertolt Brecht</td>
</tr>
<tr>
<td>GERM 364</td>
<td>(3)</td>
<td>German Culture: Gender and Society</td>
</tr>
<tr>
<td>GERM 365</td>
<td>(3)</td>
<td>Language of Media from Manuscript to Hypertext</td>
</tr>
<tr>
<td>GERM 366</td>
<td>(3)</td>
<td>Postwar German Literature/Film</td>
</tr>
<tr>
<td>GERM 367</td>
<td>(3)</td>
<td>Topics in German Thought</td>
</tr>
<tr>
<td>GERM 368</td>
<td>(3)</td>
<td>Fin-de-Siècle Vienna</td>
</tr>
<tr>
<td>GERM 371</td>
<td>(3)</td>
<td>Cultural Change and Evolution of German</td>
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<tr>
<td>GERM 382</td>
<td>(3)</td>
<td>Faust: Chapbook to Horror Film</td>
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<tr>
<td>GERM 400</td>
<td>(3)</td>
<td>Interdisciplinary Seminar: Contemporary German Studies</td>
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</tbody>
</table>

### 3.11.24.5 German Studies (GERM) Faculty

#### Chair

Karin Bauer

#### Emeritus Professor

Peter M. Daly; B.A.(Brist.), Ph.D.(Zur.)

#### Professor

Paul Peters; B.A.(Manit.), Ph.D.(Free Univ., Berlin)
Associate Professors
Karin Bauer; M.A., Ph.D.(Wash.)
Michael Cowan; B.A., Ph.D.(Calif., Berk.)

Assistant Professor
Andrew Piper; B.A.(Princ.), Ph.D.(Col.)

Faculty Lecturer
Sylvia Rieger; M.A.(Regensburg), M.A.(Vanderbilt), Ph.D.(Wash., Seattle)

Advisers
Minor Concentrations, Major Concentrations, Honours, Joint Honours Programs: Professor Andrew Piper, 514-398-2044
Major Concentration in Contemporary German Studies: Professor Karin Bauer, 514-398-3647

Note: Students may begin at the intermediate or advanced level in their first year if they have taken German courses in high school or in CEGEP or through McGill Summer Studies. The courses GERM 202 or GERM 307 may be offered through Summer Studies.

3.11.24.6 Bachelor of Arts (B.A.) - Minor Concentration German Language (18 credits)
This program may be expanded to the Major Concentration German Language and Literature.

Complementary Courses (18 credits)
Students may begin at the intermediate or advanced level in their first year if they have taken German courses in high school or in CEGEP or through McGill Summer Studies.

Note: Beginners’ and Intermediate language levels are offered either as a one-term intensive course or a two-term spanned course. Students choose which version of the level they prefer.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>GERM 200</td>
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<td>German Language, Intensive Beginners’</td>
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<td>GERM 202D1</td>
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<td>German Language, Beginners’</td>
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<td>GERM 202D2</td>
<td>3</td>
<td>German Language, Beginners’</td>
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<td>GERM 300</td>
<td>6</td>
<td>German Language Intensive Intermediate</td>
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<td>GERM 307D1</td>
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<td>GERM 325</td>
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<td>GERM 336</td>
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<td>German Language, Media and Culture</td>
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<td>GERM 341</td>
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<td>Essay Writing</td>
</tr>
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<td>GERM 342</td>
<td>3</td>
<td>Translation</td>
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<tr>
<td>GERM 345</td>
<td>3</td>
<td>Business German 1</td>
</tr>
<tr>
<td>GERM 346</td>
<td>3</td>
<td>Business German 2</td>
</tr>
</tbody>
</table>

3.11.24.7 Bachelor of Arts (B.A.) - Minor Concentration German Literature (18 credits)
This is offered as a special program for students who already possess the necessary language skills before coming to McGill, or have acquired the competence by completing the intensive sequence (GERM 200 and GERM 300) as elective courses in their first year.

This program may be expanded to the Major Concentration German Language and Literature.

Required Course (6 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>GERM 325</td>
<td>6</td>
<td>German Language - Intensive Advanced</td>
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</tbody>
</table>

Complementary Courses (12 credits)
12 credits of courses in German literature or culture, given in German, such as:

- GERM 330 (3) Landeskunde
- GERM 331 (3) Germany after Reunification
- GERM 352 (3) German Literature - 19th Century 3
- GERM 353 (3) 19th Century Literary Topics
- GERM 360 (3) German Literature 1890 to 1918
- GERM 361 (3) German Literature 1918 to 1945
- GERM 362 (3) 20th Century Literature Topics
- GERM 363 (3) German Postwar Literature
- GERM 380 (3) 18th Century German Literature
- GERM 400 (3) Interdisciplinary Seminar: Contemporary German Studies
- GERM 412 (3) Heroes, Lovers and Crusaders
- GERM 450 (3) Classical Period in German Literature
- GERM 451 (3) German Romanticism
- GERM 455 (3) Women of the Romantic Era
- GERM 511 (3) Middle High German Literature
- GERM 561 (3) German Literature: Baroque
- GERM 580 (3) Topics in 18th Century Literature

3.11.24.8 Bachelor of Arts (B.A.) - Minor Concentration German Literature and Culture in Translation (18 credits)

This program may not be expanded to a Major concentration.

Complementary Courses (18 credits)

18 credits of courses in German literature or culture in translation, such as:

- GERM 259 (3) Introduction to German Literature 1
- GERM 260 (3) Introduction to German Literature 2
- GERM 354 (3) Literary Approach to Song
- GERM 355 (3) Nietzsche and Wagner
- GERM 357 (3) German Culture in European Context
- GERM 358 (3) Franz Kafka
- GERM 359 (3) Bertolt Brecht
- GERM 364 (3) German Culture: Gender and Society
- GERM 365 (3) Language of Media from Manuscript to Hypertext
- GERM 366 (3) Postwar German Literature/Film
- GERM 367 (3) Topics in German Thought
- GERM 368 (3) Fin-de-Siècle Vienna
- GERM 371 (3) Cultural Change and Evolution of German
- GERM 382 (3) Faust: Chapbook to Horror Film
- GERM 580 (3) Topics in 18th Century Literature

3.11.24.9 Bachelor of Arts (B.A.) - Major Concentration Contemporary German Studies (36 credits)

The Major Concentration Contemporary German Studies is open to students with a sound knowledge of German as acquired in GERM 325 or equivalent. Those students who do not have the required competence in German may take the Major Concentration Contemporary German Studies only if they also take the Minor Concentration German Language. Proficiency, equivalency and placement will be determined by the Program Adviser.
### Required Courses (9 credits)

- GERM 400 (3) Interdisciplinary Seminar: Contemporary German Studies
- HIST 234 (3) German History to 1648
- HIST 235 (3) German History since 1648

### Complementary Courses (27 credits)

27 credits selected as follows:

A) 6 credits from courses in German Literature and Culture

B) 12 credits from courses in German Society

C) 9 credits from courses in German Studies

#### A) German Literature and Culture

6 credits in German Literature and Culture selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GERM 330</td>
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<td>Landeskunde</td>
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<td>GERM 331</td>
<td>(3)</td>
<td>Germany after Reunification</td>
</tr>
<tr>
<td>GERM 357</td>
<td>(3)</td>
<td>German Culture in European Context</td>
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<tr>
<td>GERM 362</td>
<td>(3)</td>
<td>20th Century Literature Topics</td>
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<tr>
<td>GERM 363</td>
<td>(3)</td>
<td>German Postwar Literature</td>
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<td>GERM 365</td>
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<td>GERM 366</td>
<td>(3)</td>
<td>Postwar German Literature/Film</td>
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<tr>
<td>GERM 367</td>
<td>(3)</td>
<td>Topics in German Thought</td>
</tr>
<tr>
<td>GERM 368</td>
<td>(3)</td>
<td>Fin-de-Siècle Vienna</td>
</tr>
</tbody>
</table>

#### B) German Society

12 credits in German Society chosen from three disciplines including History, or from two disciplines excluding History. Courses are to be selected from the lists below:

**Economics**

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>ECON 340</td>
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<td>Ex-Socialist Economies</td>
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<tr>
<td>ECON 345</td>
<td>(3)</td>
<td>The International Economy since 1914</td>
</tr>
<tr>
<td>ECON 423</td>
<td>(3)</td>
<td>International Trade</td>
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<td>ECON 424</td>
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<td>International Payments</td>
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**History**

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<td>HIST 435D1</td>
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<td>Germany in the 20th Century</td>
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<tr>
<td>HIST 435D2</td>
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**Management**

<table>
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<td>BUSA 391</td>
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<td>International Business Law</td>
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<td>MGCR 382</td>
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<td>MRKT 483</td>
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<td>ORGB 380</td>
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### Political Science

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<td>Government and Politics - Developed World</td>
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<td>POLI 328</td>
<td>3</td>
<td>Comparing European Democracies</td>
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<td>POLI 331</td>
<td>3</td>
<td>Politics in East Central Europe</td>
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<td>POLI 344</td>
<td>3</td>
<td>Foreign Policy: Europe</td>
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<td>POLI 357</td>
<td>3</td>
<td>Politics: Contemporary Europe</td>
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<tr>
<td>POLI 431</td>
<td>3</td>
<td>Nations and States/Developed World</td>
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<td>POLI 463</td>
<td>3</td>
<td>Politics of Germany</td>
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<td>POLI 466</td>
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### Sociology

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<tr>
<td>SOCI 330</td>
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<tr>
<td>SOCI 354</td>
<td>3</td>
<td>Dynamics of Industrial Societies</td>
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</tbody>
</table>

### C) German Studies

9 credits in German Studies selected from the GERM courses below or from any advanced course in German language or German literature (taught in German or in translation) or from the lists of courses on German Society above. Other courses offered by Art History, Geography, Jewish Studies, Music, Philosophy, etc. can be substituted with permission of the Program Adviser.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<td>GERM 346</td>
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Courses may also be chosen from the lists below.

### Jewish Studies

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<td>JWST 371D2</td>
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<td>Jews and the Modern City</td>
</tr>
<tr>
<td>JWST 383</td>
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<td>Holocaust Literature</td>
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### Philosophy

<table>
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<tr>
<td>PHIL 367</td>
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<td>19th Century Philosophy</td>
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<tr>
<td>PHIL 474</td>
<td>3</td>
<td>Phenomenology</td>
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</table>

### Bachelor of Arts (B.A.) - Major Concentration German Studies - Language and Literature (36 credits)

#### Required Courses (18 credits)

Students who have advanced standing equivalency for any of the language courses below will substitute more advanced courses in language, culture or literature.

Note: Beginners’ and intermediate language levels are offered either as a one-term intensive course or a two-term spanned course. Students choose which version of the level they prefer.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
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<tbody>
<tr>
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</tr>
<tr>
<td>GERM 202D1</td>
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<td>German Language, Beginners’</td>
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<td>GERM 202D2</td>
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<td>German Language, Beginners’</td>
</tr>
<tr>
<td>GERM 300</td>
<td>6</td>
<td>German Language Intensive Intermediate</td>
</tr>
<tr>
<td>GERM 307D1</td>
<td>3</td>
<td>German Language - Intermediate</td>
</tr>
<tr>
<td>GERM 307D2</td>
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<td>German Language - Intermediate</td>
</tr>
</tbody>
</table>
GERM 325 (6) German Language - Intensive Advanced

Complementary Courses (18 credits)
18 credits of courses in literature distributed across different periods selected as follows:

20th Century Literature
at least 3 credits from:
- GERM 354 (3) Literary Approach to Song
- GERM 357 (3) German Culture in European Context
- GERM 360 (3) German Literature 1890 to 1918
- GERM 361 (3) German Literature 1918 to 1945
- GERM 362 (3) 20th Century Literature Topics
- GERM 363 (3) German Postwar Literature
- GERM 364 (3) German Culture: Gender and Society
- GERM 365 (3) Language of Media from Manuscript to Hypertext
- GERM 366 (3) Postwar German Literature/Film
- GERM 367 (3) Topics in German Thought
- GERM 368 (3) Fin-de-Siècle Vienna

Classicism or Romanticism
at least 3 credits from:
- GERM 450 (3) Classical Period in German Literature
- GERM 451 (3) German Romanticism
- GERM 455 (3) Women of the Romantic Era
- GERM 580 (3) Topics in 18th Century Literature

Other Periods
at least 3 credits from:
- GERM 352 (3) German Literature - 19th Century 3
- GERM 353 (3) 19th Century Literary Topics
- GERM 380 (3) 18th Century German Literature
- GERM 382 (3) Faust: Chapbook to Horror Film
- GERM 412 (3) Heroes, Lovers and Crusaders
- GERM 511 (3) Middle High German Literature
- GERM 561 (3) German Literature: Baroque

Additional German Studies
9 credits selected from any of the literature courses above not already taken or from:
- GERM 330 (3) Landeskunde
- GERM 331 (3) Germany after Reunification
- GERM 400 (3) Interdisciplinary Seminar: Contemporary German Studies

Note: Courses on German literature or culture given in English may be substituted for any courses in the lists, to a maximum of 6 credits.
### Bachelor of Arts (B.A.) - Major Concentration German Studies - Literature and Culture (36 credits)

#### Complementary Courses (36 credits)

All German literature courses given in German require the linguistic competence acquired in GERM 325 or its equivalent. Such equivalence will be established by the Program Adviser.

36 credits selected as follows:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>GERM 330</td>
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<td></td>
<td>GERM 331</td>
<td>Germany after Reunification</td>
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<tr>
<td></td>
<td>GERM 360</td>
<td>German Literature 1890 to 1918</td>
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<td>GERM 361</td>
<td>German Literature 1918 to 1945</td>
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<td></td>
<td>GERM 412</td>
<td>Heroes, Lovers and Crusaders</td>
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<tr>
<td></td>
<td>GERM 450</td>
<td>Classical Period in German Literature</td>
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<td></td>
<td>GERM 451</td>
<td>German Romanticism</td>
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<td></td>
<td>GERM 455</td>
<td>Women of the Romantic Era</td>
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<td>GERM 354</td>
<td>Literary Approach to Song</td>
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<td>GERM 355</td>
<td>Nietzsche and Wagner</td>
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<td></td>
<td>GERM 358</td>
<td>Franz Kafka</td>
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<td></td>
<td>GERM 359</td>
<td>Bertolt Brecht</td>
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<td></td>
<td>GERM 364</td>
<td>German Culture: Gender and Society</td>
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<td></td>
<td>GERM 365</td>
<td>Language of Media from Manuscript to Hypertext</td>
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<td></td>
<td>GERM 366</td>
<td>Postwar German Literature/Film</td>
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<td>GERM 367</td>
<td>Topics in German Thought</td>
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<td>GERM 371</td>
<td>Cultural Change and Evolution of German</td>
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<td></td>
<td>GERM 382</td>
<td>Faust: Chapbook to Horror Film</td>
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<tr>
<td></td>
<td>GERM 400</td>
<td>Interdisciplinary Seminar: Contemporary German Studies</td>
</tr>
</tbody>
</table>
 Bachelor of Arts (B.A.) - Honours German Studies (60 credits)

The Honours German Studies consists of 60 credits in German. Literature courses provide an introduction to the major periods from the Middle Ages to the present.

Admission to the Honours program requires departmental approval. Students may begin this program in their first year. Honours students must maintain a GPA of 3.30 in their program courses, and, according to Faculty regulations, a minimum CGPA of 3.00 in general.

Honours students, according to Faculty regulations, also must complete at least a minor concentration (18 credits) in another academic unit.

**Required Courses (42 credits)**

- **GERM 200** (6) German Language, Intensive Beginners'
- **GERM 300** (6) German Language Intensive Intermediate
- **GERM 325** (6) German Language - Intensive Advanced
- **GERM 352** (3) German Literature - 19th Century 3
- **GERM 360** (3) German Literature 1890 to 1918
- **GERM 363** (3) German Postwar Literature
- **GERM 450** (3) Classical Period in German Literature
- **GERM 451** (3) German Romanticism
- **GERM 511** (3) Middle High German Literature
- **GERM 575** (6) Honours Thesis

With permission from the adviser, students with advanced standing in German language will replace language courses for more advanced courses in language, culture or literature.

**Complementary Courses (18 credits)**

18 credits selected as follows:

- 12 credits from:
  - **GERM 330** (3) Landeskunde
  - **GERM 331** (3) Germany after Reunification
  - **GERM 353** (3) 19th Century Literary Topics
  - **GERM 361** (3) German Literature 1918 to 1945
  - **GERM 362** (3) 20th Century Literature Topics
  - **GERM 365** (3) Language of Media from Manuscript to Hypertext
  - **GERM 380** (3) 18th Century German Literature
  - **GERM 400** (3) Interdisciplinary Seminar: Contemporary German Studies
  - **GERM 580** (3) Topics in 18th Century Literature

In the event that there are not enough courses offered in German, substitution with courses from the list below is allowed only with permission of the Adviser.

- 6 credits from:
  - **GERM 259** (3) Introduction to German Literature 1
  - **GERM 260** (3) Introduction to German Literature 2
  - **GERM 336** (3) German Language, Media and Culture
  - **GERM 354** (3) Literary Approach to Song
  - **GERM 355** (3) Nietzsche and Wagner
  - **GERM 357** (3) German Culture in European Context
  - **GERM 358** (3) Franz Kafka
Other suitable courses in the Department or in other related disciplines and departments may be taken with the approval of the Adviser.

3.11.24.13 Bachelor of Arts (B.A.) - Joint Honours Component German Studies (36 credits)

Students who wish to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable).

Admission to the Joint Honours program requires departmental approval. Joint Honours students must maintain a GPA of 3.30 in their program courses, and, according to Faculty regulations, a minimum CGPA of 3.00 in general.

Required Courses (21 credits)

<table>
<thead>
<tr>
<th>Course</th>
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<th>Title</th>
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<td>GERM 200</td>
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<td>GERM 300</td>
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<td>GERM 325</td>
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<td>German Language - Intensive Advanced</td>
</tr>
<tr>
<td>GERM 570</td>
<td>3</td>
<td>Joint Honours Thesis</td>
</tr>
</tbody>
</table>

With permission of the Adviser, students with advanced standing in German language will replace language courses for more advanced courses in language, culture or literature.

Complementary Courses (15 credits)

15 credits selected from 400- to 500-level German literature and culture courses, from at least three centuries, with the approval of the Adviser.

3.11.25 Hispanic Studies (HISP)

3.11.25.1 Location

688 Sherbrooke Street West, Room 425
Montreal, Quebec H3A 3R1

Telephone: 514-398-6683
Fax: 514-398-1748
Email: hispanic.studies@mcgill.ca
Website: www.mcgill.ca/hispanic

3.11.25.2 About Hispanic Studies

The Department of Hispanic Studies offers courses on literature, intellectual history, and the civilization of Spain and Hispanic America, as well as in the Spanish and Portuguese languages. The Department and its programs are committed to expanding the liberal arts background of students by helping to develop the skills of communication and critical reasoning, and by providing insight into the culture of other regional, linguistic, and national groups.

McGill University has bilateral exchange agreements with the Universidad de Salamanca (Spain), the Universidad Nacional Autónoma de México, and the Universidad de las Américas, Puebla (Mexico), as well as with other leading universities in the Spanish and Portuguese-speaking world which allow student and faculty exchanges, and other collaborative ventures. Further information about these exchanges may be obtained from the Department. Application forms are available from the Student Exchange Officer in Enrolment Services, Service Point, 3415 McTavish Street, Montreal, Quebec, H3A 1Y1.

The Department collaborates closely with the program in Latin-American and Caribbean Studies, and students are encouraged to consult that program listing.
3.11.25.3 Undergraduate Programs

Adviser:
José Jouve-Martin
688 Sherbrooke, Room 379
Telephone: 514-398-6657 / 6683

Language Director:
Lucia Chamanadjian
688 Sherbrooke, Room 373
Telephone: 514-398-5779

The Department of Hispanic Studies offers the following undergraduate programs and concentrations, which permit students to pursue a variety of intellectual and preprofessional options:

- Minor Concentration in Hispanic Languages (Expandable)
- Minor Concentration in Hispanic Literature and Culture (Expandable)
- Major Concentration in Hispanic Languages
- Major Concentration in Hispanic Literature and Culture
- Honours Program in Hispanic Studies
- Joint Honours Program in Hispanic Studies

Students who envision graduate studies upon completion of the B.A. are strongly advised to pursue a program of Honours or Joint Honours. (Honours students must submit their thesis by March 15.) Although the Major and Minor concentrations form an important part of the multi-track B.A. in Arts, this general degree does not provide the specialized training called for by most graduate programs in the humanities and social sciences.

Note: Advanced Placement (AP) credits and courses taken at other universities in Quebec will not be accredited towards the Minor.

3.11.25.4 Hispanic Studies (HISP) Faculty

Chair
Amanda Holmes

Professors
Jesús Pérez-Magallón; Lic.Fil.(Barcelona), Ph.D.(Penn.)
K.M. Sibbald; M.A.(Cant.), M.A.(Liv.), Ph.D.(McG.)

Associate Professors
David A. Boruchoff; A.B., A.M., Ph.D.(Harv.)
Amanda Holmes; B.A.(McG.), M.A., Ph.D.(Ore.)
José Jouve-Martin; Lic.Phil.(Madrid), Ph.D.(G’town)

Assistant Professor
Fernanda Macchi; Lic.Lit.(Buenos Aires), M.A.(Ore.), Ph.D.(Yale)

Faculty Lecturer
Lucia Chamanadjian; M.A.(Car.)

3.11.25.5 Bachelor of Arts (B.A.) - Minor Concentration Hispanic Languages (18 credits)

This program may be expanded to the Major Concentration Hispanic Studies - Languages.

Complementary Courses (18 credits)

18 credits from the list of courses below:
Note: Advanced Placement (AP) credits and courses taken at other universities in Quebec will not be accredited towards the Minor. Students with advanced standing in the language will replace language courses with more advanced courses in language, culture, or literature at the 200-level or above, selected from Departmental offerings.

HISP 202D1 (3)  Portuguese Language: Beginners'
HISP 202D2 (3)  Portuguese Language: Beginners'
HISP 204D1 (3)  Portuguese Language: Intermediate
HISP 204D2 (3)  Portuguese Language: Intermediate
HISP 210D1 (3)  Spanish Language: Beginners'
HISP 210D2 (3)  Spanish Language: Beginners'
HISP 218 (6)    Spanish Language Intensive - Elementary
HISP 219 (6)    Spanish Language Intensive - Intermediate
HISP 220D1 (3)  Spanish Language: Intermediate
HISP 220D2 (3)  Spanish Language: Intermediate
HISP 225 (3)    Hispanic Civilization 1
HISP 226 (3)    Hispanic Civilization 2

3.11.25.6 Bachelor of Arts (B.A.) - Minor Concentration Hispanic Literature and Culture (18 credits)
This program may be expanded to the Major Concentration Hispanic Studies - Literature and Culture.

Note: Advanced Placement (AP) credits and courses taken at other universities in Quebec will not be accredited towards the Minor. Students with advanced standing in the language will replace language courses with more advanced courses in language, culture, or literature at the 200 level or above, selected from Departmental offerings.

Required Courses (6 credits)
HISP 225 (3)    Hispanic Civilization 1
HISP 226 (3)    Hispanic Civilization 2

Complementary Courses (12 credits)

200 Level - Literature
6 credits from:
HISP 241 (3)    Survey of Spanish Literature 1
HISP 242 (3)    Survey of Spanish Literature 2
HISP 243 (3)    Survey of Spanish-American Literature 1
HISP 244 (3)    Survey of Spanish-American Literature 2

300 Level or Above - Literature and Culture
6 credits from:
HISP 321 (3)    Spanish Literature - 18th Century
HISP 324 (3)    20th Century Drama
HISP 325 (3)    Spanish Novel of the 19th Century
HISP 326 (3)    Spanish Romanticism
HISP 327 (3)    Literature of Ideas: Spain
HISP 328 (3)    Literature of Ideas: Spanish America
HISP 332 (3)    Spanish-American Literature of 19th Century
HISP 333  (3)  Spanish-American Drama
HISP 340  (3)  Spanish-American Cinema
HISP 341  (3)  Spanish Cinema
HISP 350  (3)  The Generation of 1898
HISP 351  (3)  Spanish-American Novel 1
HISP 352  (3)  Spanish-American Novel 2
HISP 356  (3)  Spanish-American Short Story
HISP 358  (3)  Women Writers Fiction Spanish-America
HISP 423  (3)  Modern Lyric Poetry
HISP 424  (3)  Spanish Novel since Civil War
HISP 432  (3)  Literature - Discovery and Exploration Spain New World
HISP 437  (3)  Viceregal Spanish America
HISP 438  (3)  Topics: Spanish Literature
HISP 439  (3)  Topics: Spanish-American Literature
HISP 442  (3)  Modernismo
HISP 451D1  (3)  Cervantes
HISP 451D2  (3)  Cervantes
HISP 453  (3)  20th Century Spanish-American Poetry
HISP 454  (3)  Major Figures: Spanish Literature
HISP 455  (3)  Major Figures: Spanish-American Literature
HISP 457  (3)  Medieval Literature
HISP 458  (3)  Golden Age Literature: Renaissance
HISP 460  (3)  Golden Age Literature: Baroque
HISP 501  (3)  History of the Spanish Language
HISP 505  (3)  Seminar in Hispanic Studies 01
HISP 506  (3)  Seminar in Hispanic Studies 02
HISP 507  (3)  Seminar in Hispanic Studies 03

3.11.25.7 Bachelor of Arts (B.A.) - Major Concentration Hispanic Studies - Languages (36 credits)

Complementary Courses (36 credits)
36 credits selected as follows:

Language and Civilization
0-18 credits in Language and Civilization from:

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<td>Portuguese Language: Beginners’</td>
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<td>Portuguese Language: Intermediate</td>
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<td>(3)</td>
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<td>HISP 210D2</td>
<td>(3)</td>
<td>Spanish Language: Beginners’</td>
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<td>HISP 218</td>
<td>(6)</td>
<td>Spanish Language Intensive - Elementary</td>
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<td>HISP 220D2</td>
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<td>Spanish Language: Intermediate</td>
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<td>HISP 225</td>
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<td>Hispanic Civilization 1</td>
</tr>
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<td>HISP 226</td>
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<td>Hispanic Civilization 2</td>
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**Survey of Literature**

6 credits in Survey of Literature from:

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<tr>
<th>Course Code</th>
<th>Credits</th>
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<td>HISP 243</td>
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<tr>
<td>HISP 244</td>
<td>3</td>
<td>Survey of Spanish-American Literature 2</td>
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**300-Level or Above Hispanic Literature**

12-30 credits in Hispanic literature at the 300 level or above, of which at least 6 credits must be in literature of the pre-1700 period, from:

<table>
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<th>Credits</th>
<th>Course Title</th>
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<tbody>
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<td>HISP 324</td>
<td>3</td>
<td>20th Century Drama</td>
</tr>
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<td>HISP 325</td>
<td>3</td>
<td>Spanish Novel of the 19th Century</td>
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<td>HISP 326</td>
<td>3</td>
<td>Spanish Romanticism</td>
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<tr>
<td>HISP 327</td>
<td>3</td>
<td>Literature of Ideas: Spain</td>
</tr>
<tr>
<td>HISP 328</td>
<td>3</td>
<td>Literature of Ideas: Spanish America</td>
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<tr>
<td>HISP 332</td>
<td>3</td>
<td>Spanish-American Literature of 19th Century</td>
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<td>3</td>
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<td>HISP 350</td>
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<td>The Generation of 1898</td>
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<td>HISP 351</td>
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<td>Spanish-American Novel 1</td>
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<td>HISP 352</td>
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<td>Women Writers Fiction Spanish-America</td>
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<td>HISP 439</td>
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<td>HISP 442</td>
<td>3</td>
<td>Modernismo</td>
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<td>HISP 453</td>
<td>3</td>
<td>20th Century Spanish-American Poetry</td>
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<td>HISP 454</td>
<td>3</td>
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<td>HISP 455</td>
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<td>HISP 506</td>
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<tr>
<td>HISP 507</td>
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<td>Seminar in Hispanic Studies 03</td>
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**Pre-1700 Literature**

At least 6 credits from:
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<tr>
<td>HISP 432</td>
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<td>Literature - Discovery and Exploration Spain New World</td>
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<td>(3)</td>
<td>Viceregal Spanish America</td>
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<td>HISP 457</td>
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<td>Medieval Literature</td>
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<tr>
<td>HISP 458</td>
<td>(3)</td>
<td>Golden Age Literature: Renaissance</td>
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<tr>
<td>HISP 460</td>
<td>(3)</td>
<td>Golden Age Literature: Baroque</td>
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<tr>
<td>HISP 501</td>
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### Bachelor of Arts (B.A.) - Major Concentration Hispanic Studies - Literature and Culture (36 credits)

#### Required Courses (18 credits)

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<td>HISP 242</td>
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<td>(3)</td>
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<td>HISP 244</td>
<td>(3)</td>
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<tr>
<td>HISP 451D1</td>
<td>(3)</td>
<td>Cervantes</td>
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<tr>
<td>HISP 451D2</td>
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#### Complementary Courses (18 credits)

18 credits selected as follows:

0 - 3 credits from:

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<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>HISP 250</td>
<td>(3)</td>
<td>Reading Hispanic Literature</td>
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</table>

#### 300 Level or Above Hispanic Literature

At least 15 credits in Hispanic literature at the 300 level or above, of which at least 3 credits must be in literature of the pre-1700 period, from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>HISP 321</td>
<td>(3)</td>
<td>Spanish Literature - 18th Century</td>
</tr>
<tr>
<td>HISP 324</td>
<td>(3)</td>
<td>20th Century Drama</td>
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<tr>
<td>HISP 325</td>
<td>(3)</td>
<td>Spanish Novel of the 19th Century</td>
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<tr>
<td>HISP 326</td>
<td>(3)</td>
<td>Spanish Romanticism</td>
</tr>
<tr>
<td>HISP 327</td>
<td>(3)</td>
<td>Literature of Ideas: Spain</td>
</tr>
<tr>
<td>HISP 328</td>
<td>(3)</td>
<td>Literature of Ideas: Spanish America</td>
</tr>
<tr>
<td>HISP 332</td>
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<td>HISP 333</td>
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### Pre-1700 Literature
At least 3 credits from:

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<tr>
<td>HISP 432</td>
<td>3</td>
<td>Literature - Discovery and Exploration Spain New World</td>
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<tr>
<td>HISP 437</td>
<td>3</td>
<td>Viceregal Spanish America</td>
</tr>
<tr>
<td>HISP 457</td>
<td>3</td>
<td>Medieval Literature</td>
</tr>
<tr>
<td>HISP 458</td>
<td>3</td>
<td>Golden Age Literature: Renaissance</td>
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<tr>
<td>HISP 460</td>
<td>3</td>
<td>Golden Age Literature: Baroque</td>
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<tr>
<td>HISP 501</td>
<td>3</td>
<td>History of the Spanish Language</td>
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</table>

### 3.11.25.9 Bachelor of Arts (B.A.) - Honours Hispanic Studies (60 credits)

Prerequisite for admission into Honours Hispanic Studies: a first-year Spanish course with a final grade of B+. Honours students are expected to maintain a program GPA of 3.00 and, according to Faculty regulations, a minimum CGPA of 3.00 in general. Students must take an 18-credit Minor concentration in another area.

#### Required Courses (24 credits)

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>HISP 241</td>
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<tr>
<td>HISP 242</td>
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<td>Survey of Spanish Literature 2</td>
</tr>
<tr>
<td>HISP 243</td>
<td>3</td>
<td>Survey of Spanish-American Literature 1</td>
</tr>
<tr>
<td>HISP 244</td>
<td>3</td>
<td>Survey of Spanish-American Literature 2</td>
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<tr>
<td>HISP 451D1</td>
<td>3</td>
<td>Cervantes</td>
</tr>
<tr>
<td>HISP 451D2</td>
<td>3</td>
<td>Cervantes</td>
</tr>
<tr>
<td>HISP 490D1</td>
<td>3</td>
<td>Honours Thesis</td>
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<tr>
<td>HISP 490D2</td>
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<td>Honours Thesis</td>
</tr>
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#### Complementary Courses (36 credits)

36 credits with at least 6 credits selected from:

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<tr>
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<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Literature - Discovery and Exploration Spain New World</td>
</tr>
<tr>
<td>HISP 437</td>
<td>3</td>
<td>Viceregal Spanish America</td>
</tr>
<tr>
<td>HISP 458</td>
<td>3</td>
<td>Golden Age Literature: Renaissance</td>
</tr>
<tr>
<td>HISP 460</td>
<td>3</td>
<td>Golden Age Literature: Baroque</td>
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</table>

All remaining credits may be selected from courses given in Spanish in the Department at or above the intermediate Spanish language level (HISP 219 OR HISP 220D1/HISP 220D2).
3.11.25.10 Bachelor of Arts (B.A.) - Joint Honours Component Hispanic Studies (36 credits)

Students wishing to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see “Overview of Programs Offered” and “Joint Honours Programs”.

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable). Joint Honours students are expected to maintain a program GPA of 3.30 and, according to Faculty regulations, a minimum CGPA of 3.00 in general.

Required Courses (12 credits)

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<td>HISP 451D2</td>
<td>Cervantes</td>
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</tr>
<tr>
<td>HISP 490D2</td>
<td>Honours Thesis</td>
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</table>

Complementary Courses (24 credits)

24 credits selected as follows:

Survey of Literature

At least 6 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HISP 241</td>
<td>Survey of Spanish Literature 1</td>
<td>(3)</td>
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<tr>
<td>HISP 242</td>
<td>Survey of Spanish Literature 2</td>
<td>(3)</td>
</tr>
<tr>
<td>HISP 243</td>
<td>Survey of Spanish-American Literature 1</td>
<td>(3)</td>
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<tr>
<td>HISP 244</td>
<td>Survey of Spanish-American Literature 2</td>
<td>(3)</td>
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</table>

400-Level

At least 6 credits from the 400-level courses below:

<table>
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<tr>
<th>Course Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HISP 432</td>
<td>Literature - Discovery and Exploration Spain New World</td>
<td>(3)</td>
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<tr>
<td>HISP 437</td>
<td>Viceregal Spanish America</td>
<td>(3)</td>
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<tr>
<td>HISP 458</td>
<td>Golden Age Literature: Renaissance</td>
<td>(3)</td>
</tr>
<tr>
<td>HISP 460</td>
<td>Golden Age Literature: Baroque</td>
<td>(3)</td>
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</table>

All remaining credits may be selected from courses given in Spanish in the Department above the Intermediate Spanish language level (HISP 219 OR HISP 220D1/HISP 220D2).

3.11.26 History and Classical Studies – History (HIST)

3.11.26.1 Location

General Office, Room 608
Stephen Leacock Building, 6th Floor
855 Sherbrooke Street West
Montreal, Quebec H3A 2T7

Telephone: 514-398-3975
Fax: 514-398-8365
Email: undergrad.history@mcgill.ca
Website: www.mcgill.ca/history

3.11.26.2 About History

In today’s world, people who can research thoroughly, write effectively, speak eloquently, and think clearly are in great demand. Recent graduates of our programs are currently pursuing careers in a variety of professions, including law, business, journalism, academia, finance, government, the arts, science, education, and medicine. All have benefited as professionals, individuals, and citizens from their study of history. The study of history develops skills in
research, writing, and critical thinking and provides a context for understanding the present world. History requires and develops flexible thinking as it normally employs inductive reasoning. Historians usually begin with a specific, temporally, and spatially defined issue and try to determine a pattern or cause for change over time. They move from the particular to the general and since historians usually begin with an open-ended question, they often find themselves drawing on other disciplines to understand the problem.

3.11.26.3 Programs in History

The Department offers three kinds of undergraduate programs: Honours, Major concentration, and Minor concentration. Courses in History fall into one of the following FOUR areas: The Americas; Europe; Asia/Africa/Middle East; Global/thematic. In each program, a specified number of credits may be selected from any single area. Each student’s program is worked out with an academic program adviser to suit the student’s specific needs within the general framework of the program.

Courses within each area are listed on the History Department’s website. Please refer to our website for a listing of courses being offered in 2011-2012 in each area.

**IMPORTANT NOTE:** Advanced Placement or International Baccalaureate credits may not be included in the overall credit requirement for history programs but may be considered as having met prerequisites for an upper-level course – please discuss with the professor of an upper-level course requiring the prerequisite or your academic program adviser.

Candidates entering the University as U0 or U1 students may, during their first year, take all courses at the 200 level as well as courses at the 300 level for which they have prerequisites. First-Year Seminars are also available in History; see section 3.7.5.9: First-Year Seminar Courses.

3.11.26.4 History and Classical Studies – History (HIST) Faculty

**Chair**

John E. Zucchi

**Undergraduate Program Director**

Catherine Desbarats

**Emeritus Professors**

Myron Echenberg; M.A.(McG.), Ph.D.(Wisc.)

Andrée Lévesque; B.A.(Laval), M.A., Ph.D.(Duke)

Michael P. Maxwell; B.A.(Sir G. Wms.), M.A., Ph.D.(McG.)

Carman I. Miller; B.A., B.Ed.(Acad.), M.A.(Dal.), Ph.D.(Lond.)

Desmond Morton; B.A.(RMC), B.A., M.A.(Oxf.), Ph.D.(Lond.) (*Hiram Mills Emeritus Professor of History*)

Albert Schachter; B.A.(McG.), D.Phil.(Oxf.) (*Hiram Mills Emeritus Professor of Classics*)

George Michael Woloch; B.A.(Yale), M.A.(Oxf.), Ph.D.(Johns Hop.) (*John MacNaughton Professor of Classics*)

Brian J. Young; B.A.(Tor.), M.A., Ph.D.(Qu.) (*James McGill Emeritus Professor of History*)

**Professors**

Hans Beck; Ph.D.(Erlangen) (*John MacNaughton Professor of Classics*)

Valentin J. Boss; B.A.(Can.), Ph.D.(Harv.)

Gwyn Campbell; B.Soc.Sc., M.Soc.Sc.(Birm.), Ph.D.(Wales)

Allan Greer; B.A.(Br. Col.), M.A.(Car.), Ph.D.(York)

John W. Hellman; B.A.(Marquette), M.A., Ph.D.(Harv.)

Peter Hoffmann; Ph.D.(Munich), F.R.S.C. (*William Kingsford Professor of History*)

Gershon D. Hundert; B.A., M.A.(Ohio St.), Ph.D.(Col.) (*Leanor Segal Professor of Jewish Studies*) (*joint appt. with Jewish Studies*)

Suzanne Morton; B.A.(Trent), M.A., Ph.D.(Dal.)

Yuzo Ota; B.A., M.A., Ph.D.(Tokyo)

Nancy F. Partner; B.A., M.A., Ph.D.(Calif.)

Andrea Tone; B.A.(Qu.), M.A., Ph.D.(Emory) (*joint appt. with Social Studies of Medicine*)

Gil E. Troy; A.B., A.M., Ph.D.(Harv.)

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Professors
Robin D.S. Yates; B.A., M.A.(Oxf.), M.A.(Calif.), Ph.D.(Harv.) (James McGill Professor) (joint appt. with East Asian Studies)
John Zucchi; B.A., M.A., Ph.D.(Tor.)

Associate Professors
Paula Clarke; B.A.(Oxf. and Nfld.), M.A.(Tor.), Ph.D.(Lond.)
Brian Cowan; B.A.(Reed), M.A., Ph.D.(Princ.)
Catherine Desbarats; B.A.(Qu.), D.Phil.(Oxf.), Ph.D.(McG.)
Nicholas Dew; B.A., M.A., Ph.D.(Oxf.)
Elizabeth Elbourne; B.A, M.A.(Tor.), D.Phil.(Oxf.)
Michael Fronda; B.A.(C' nell), M.A., Ph.D.(Ohio St.)
Elsbeth Heaman; B.A., M.A.(McG.), Ph.D.(Tor.)
Catherine C. LeGrand; B.A.(Reed), M.A., Ph.D.(Stan.)
Brian Lewis; B.A., M.A.(Oxf.), A.M., Ph.D.(Harv.)
Lorenz Lüthi; lic. phil. (Zürich), Ph.D.(Yale)
Leonard Moore; A.B., M.A., Ph.D.(Calif.)
Catherine C. LeGrand; B.A.(Reed), M.A., Ph.D.(Stan.)
Brian Lewis; B.A., M.A.(Oxf.), A.M., Ph.D.(Harv.)

Assistant Professors
Malek Abisaab; B.A.(Beirut), M.A.(CUNY), Ph.D.(SUNY) (joint appt. with Islamic Studies)
Charles W. Gladhill; B.A.(Mich.), M.A.(Georgia South.), Ph.D.(Stan.)
Lynn Kozak; B.A.(Barnard), M.A.(Lond.), Ph.D.(Nott.)
Johanna Ransmeier; B.A.(Amh.), M.A., Ph.D.(McG.)

Faculty Lecturers
Thomas Jundt; B.A., M.A.(Neb.), Ph.D.(Brown)
Judith Szapor; B.A., M.A., Ph.D.(York)

Part-time Assistant Professor
Jason Szabo; M.D.(Alta.), M.A., Ph.D.(McG.)

3.11.26.5 Bachelor of Arts (B.A.) - Minor Concentration History (18 credits)
This program may be expanded to the Major Concentration History.

Complementary Courses (18 credits)
18 credits selected from the areas of History course lists (The Americas, Europe, Asia/Africa/Middle East, and Global/Thematic) with the following stipulations:
A minimum of 12 credits at the 300 level or higher.
A minimum of 15 credits from any one area.
Students should see an adviser to plan a program that suits their needs.
### The Americas - FYS & 200 Level

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<td>HIST 202</td>
<td>3</td>
<td>Survey: Canada to 1867</td>
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<td>HIST 203</td>
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<td>Survey: Canada since 1867</td>
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<td>HIST 211</td>
<td>3</td>
<td>American History to 1865</td>
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<td>HIST 221</td>
<td>3</td>
<td>United States since 1865</td>
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<td>HIST 223</td>
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<td>Natives of the Americas</td>
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### The Americas - 300 Level

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<td>HIST 301</td>
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<td>HIST 303</td>
<td>3</td>
<td>History of Quebec</td>
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<td>HIST 309</td>
<td>3</td>
<td>History of Latin America to 1825</td>
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<td>HIST 311</td>
<td>3</td>
<td>The Gilded Age and The Progressive Era</td>
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<td>HIST 312</td>
<td>3</td>
<td>Hist of Consumption in Canada</td>
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<td>HIST 322</td>
<td>3</td>
<td>Canada: American Presence since 1939</td>
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<td>HIST 327</td>
<td>3</td>
<td>Age of the American Revolution</td>
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<td>HIST 331</td>
<td>3</td>
<td>The United States Between the Wars</td>
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<td>HIST 333</td>
<td>3</td>
<td>Natives and French</td>
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<td>HIST 335</td>
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<td>Women in Post-Confederation Canada</td>
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<td>Canadian Military Experience</td>
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<td>HIST 397</td>
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### The Americas - 400 Level

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<td>HIST 408</td>
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<td>Colonialism and Native Peoples</td>
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<td>HIST 409</td>
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<td>Themes in Latin American History 2</td>
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<td>HIST 414</td>
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<td>HIST 423</td>
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<td>Topics: Migration and Ethnicity</td>
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<td>Topics: Canadian Family History</td>
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<td>British North America 1760-1867</td>
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### The Americas - 500 Level

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<tr>
<td>HIST 583</td>
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<td>Conservatism in Canada</td>
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### The Americas - Honours Seminars

Honours two-part seminar in the list below: HIST 556/HIST 557

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<td>Colonial America: Seminar 1</td>
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<td>HIST 557</td>
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### Global/Thematic - 500 Level

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### Global/Thematic - Honours Seminars

Honours two-part seminars in the list below: HIST 454/HIST 455, HIST 458/HIST 459, HIST 552/HIST 553, HIST 560/HIST 561.

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### 3.11.26.6 Bachelor of Arts (B.A.) - Major Concentration History (36 credits)

**Complementary Courses (36 credits)**

36 credits selected from the areas of History course lists (The Americas, Europe, Asia/Africa/Middle East, and Global/Thematic) with the following stipulations:

- A maximum of 12 credits at the 200 level or lower.
- A maximum of 24 credits from any one area.
- 3 credits in history of the pre-1800 period.
- 3 credits in history of the post-1800 period.

**The Americas - FYS & 200 Level**

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**The Americas - 300 Level**

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**The Americas - 400 Level**

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**The Americas - 500 Level**

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**The Americas - Honours Seminars**

Honours two-part seminar in the list below: HIST 556/HIST 557.

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### Asia/Africa/Middle East - 200 Level

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### Asia/Africa/Middle East - 300 Level

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<td>Colonial Africa: Health/Disease</td>
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### Asia/Africa/Middle East - 400 Level
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<td>Asian Diaspora: Chinese Overseas</td>
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<td>British Colonies: Africa and Asia</td>
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**Asia/Africa/Middle East - 500 Level**

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**Asia/Africa/Middle East - Honours Seminars**

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**Europe - FYS & 200 Level**

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**Europe - 300 Level**

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**Europe - 500 Level**

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**Europe - Honours Seminars**

Honours two-part seminars in the list below: HIST 466/HIST 496, HIST 550/HIST 551, HIST 565/HIST 566.

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HIST 594D1 (3) Seminar in Early Modern Britain
HIST 594D2 (3) Seminar in Early Modern Britain
HIST 595D1 (3) Seminar: Early Modern Western Europe
HIST 595D2 (3) Seminar: Early Modern Western Europe

Global/Thematic - FYS & 200 Level
HIST 193 (3) FYS: Topics in History
HIST 194 (3) FYS: Jewish Concepts of Others
HIST 195 (3) FYS: Sources of World History
HIST 196 (3) FYS: Weather/Climate/History
HIST 198 (3) FYS: Nation Building and Nationalism
HIST 199 (3) FYS: Medieval Women and Men
HIST 207 (3) Jewish History: 400 B.C.E. to 1000
HIST 213 (3) World History, 1300-2000
HIST 219 (3) Jewish History: 1000 - 2000
HIST 238 (3) Histories of Science
HIST 249 (3) Health and the Healer in Western History
HIST 292 (3) History and the Environment

Global/Thematic - 300 Level
HIST 302 (3) International Relations History 1: 1750-1950
HIST 304 (3) International Relations History 2: Cold War
HIST 310 (3) Knowledge and Atlantic Empire
HIST 315 (3) Themes in World History
HIST 317 (3) Introduction to Indian Ocean World History
HIST 319 (3) The Scientific Revolution
HIST 323 (3) History and Sexuality 1
HIST 347 (3) History and Sexuality 2
HIST 350 (3) Science and the Enlightenment
HIST 387 (3) The First World War
HIST 388 (3) The Second World War

Global/Thematic - 400 Level
HIST 408 (3) Colonialism and Native Peoples
HIST 410 (3) Topics in History of Science
HIST 418 (3) Topics: Atlantic World
HIST 424 (3) Gender, Sexuality & Medicine
HIST 427 (3) The Hasidic Movement
HIST 430 (3) Topics in Modern Medicine
HIST 438 (3) Topics in Cold War History
HIST 440 (3) Fiction and History
HIST 457 (3) Topics in Medical History
Global/Thematic - 500 Level

HIST 525 (3) Women, Work and Family in Global History
HIST 526 (3) Women and War
HIST 527 (3) Topics: Indian Ocean World History
HIST 528 (3) Indian Ocean World Slave Trade
HIST 585 (3) Theory for Historical Studies
HIST 590 (3) Topics: The British Empire

Global/Thematic - Honours Seminars

Honours two-part seminars in the list below: HIST 454/HIST 455, HIST 458/HIST 459, HIST 552/HIST 553, HIST 560/HIST 561.

HIST 454 (3) Seminar: Early Modern Medicine
HIST 455 (3) Research: Early Modern Medicine
HIST 458 (3) Modern Medicine: Seminar
HIST 459 (3) Modern Medicine: Research
HIST 470D1 (3) Topics: Historical Interpretation
HIST 470D2 (3) Topics: Historical Interpretation
HIST 477D1 (3) Seminar in Jewish History
HIST 477D2 (3) Seminar in Jewish History
HIST 492D1 (3) Topics in Comparative History
HIST 492D2 (3) Topics in Comparative History
HIST 552 (3) International Relations: Seminar
HIST 553 (3) International Relations: Research
HIST 560 (3) World History: Seminar
HIST 561 (3) World History: Research

Courses Offered by Other Units

The following course(s) may be chosen by History Major concentration and Honours students as part of their programs.
Please consult with History Department program advisers for courses that do not appear here.

Anthropology (ANTH)

ANTH 306 (3) Native Peoples' History in Canada

Art History (ARTH)

Please consult with History Department program advisers.

Canadian Studies (CANS)

Please consult with History Department program advisers.

Islamic Studies (ISLA)

Please consult with History Department program advisers.

Jewish Studies (JWST)

JWST 305 (3) American Jewish History / Colonial Era to WWI
JWST 306 (3) The American Jewish Community
Quebec Studies (QCST)

Please consult with History Department program advisers.

NOTE: AP/IB credits may not be counted toward history program credits but may be considered as having met prerequisites for upper-level history courses. Students should consult with the Honours Program Adviser.

Bachelor of Arts (B.A.) - Honours History (60 credits)

Students must maintain a 3.30 grade point average in their program courses and must have no less than a "B" in any program course. In addition, and in accordance with Faculty of Arts rules, students must maintain an overall CGPA of 3.00.

Required Course (3 credits)
HIST 399 (3) History and Historical Methods

Complementary Courses (57 credits)

57 credits selected from the areas of History course lists (The Americas, Europe, Asia/Africa/Middle East, and Global/Thematic) with the following stipulations:

- A maximum of 15 credits at the 200 level or lower.
- A maximum of 42 credits in any one of the areas.
- A minimum of 12 credits of Honours seminars (these are listed with their thematic area). Each Honours seminar comprises a 6-credit course with a D1/D2 course number or two 3-credit courses to be taken consecutively. The second term component includes the completion of a major research paper based substantially on primary-source research. Both parts of a D1/D2 seminar must be completed to receive credit. The first course of a two-part seminar may be taken alone in exceptional circumstances, but in that case will be counted towards the complementary course component of the program only and will not be counted as an Honours seminar.

The Americas - FYS & 200 Level

HIST 197 (3) FYS: Race in Latin America
HIST 202 (3) Survey: Canada to 1867
HIST 203 (3) Survey: Canada since 1867
HIST 211 (3) American History to 1865
HIST 221 (3) United States since 1865
HIST 223 (3) Natives of the Americas

The Americas - 300 Level

HIST 300 (3) Nationalisms in Canada
HIST 301 (3) U.S. Presidential Campaigning
HIST 303 (3) History of Quebec
HIST 309 (3) History of Latin America to 1825
HIST 311 (3) The Gilded Age and The Progressive Era
HIST 312 (3) Hist of Consumption in Canada
HIST 322 (3) Canada: American Presence since 1939
HIST 327 (3) Age of the American Revolution
HIST 331 (3) The United States Between the Wars
HIST 333 (3) Natives and French
HIST 334 (3) History of New France
HIST 335 (3) Science and Medicine in Canada
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<td>Women in Post-Confederation Canada</td>
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<td>Themes in U.S. History since 1865</td>
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<td>HIST 357</td>
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<td>Religion and Canadian Society in Historical Perspective</td>
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**The Americas - 400 Level**

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**The Americas - 500 Level**

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**The Americas - Honours Seminars**

Honours two-part seminar in the list below: HIST 556/HIST 557.

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**Asia/Africa/Middle East - 200 Level**

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**Global/Thematic - FYS & 200 Level**

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<td>Health and the Healer in Western History</td>
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<td>HIST 292</td>
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<td>History and the Environment</td>
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**Global/Thematic - 300 Level**

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<td>HIST 302</td>
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<td>International Relations History 1: 1750-1950</td>
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<td>3</td>
<td>International Relations History 2: Cold War</td>
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<td>HIST 310</td>
<td>3</td>
<td>Knowledge and Atlantic Empire</td>
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<td>HIST 315</td>
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<td>Themes in World History</td>
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<td>HIST 317</td>
<td>3</td>
<td>Introduction to Indian Ocean World History</td>
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<td>HIST 319</td>
<td>3</td>
<td>The Scientific Revolution</td>
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<td>HIST 323</td>
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<td>History and Sexuality 1</td>
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<td>HIST 347</td>
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<td>Science and the Enlightenment</td>
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**Global/Thematic - 400 Level**

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<tr>
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<td>3</td>
<td>Colonialism and Native Peoples</td>
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<tr>
<td>HIST 410</td>
<td>3</td>
<td>Topics in History of Science</td>
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<tr>
<td>HIST 418</td>
<td>3</td>
<td>Topics: Atlantic World</td>
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<tr>
<td>HIST 424</td>
<td>3</td>
<td>Gender, Sexuality &amp; Medicine</td>
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HIST 427  (3)  The Hasidic Movement
HIST 430  (3)  Topics in Modern Medicine
HIST 438  (3)  Topics in Cold War History
HIST 440  (3)  Fiction and History
HIST 457  (3)  Topics in Medical History

Global/Thematic - 500 Level

HIST 525  (3)  Women, Work and Family in Global History
HIST 526  (3)  Women and War
HIST 527  (3)  Topics: Indian Ocean World History
HIST 528  (3)  Indian Ocean World Slave Trade
HIST 585  (3)  Theory for Historical Studies
HIST 590  (3)  Topics: The British Empire

Global/Thematic - Honours Seminars

Honours two-part seminars in the list below: HIST 454/HIST 455, HIST 458/HIST 459, HIST 552/HIST 553, HIST 560/HIST 561.

HIST 454  (3)  Seminar: Early Modern Medicine
HIST 455  (3)  Research: Early Modern Medicine
HIST 458  (3)  Modern Medicine: Seminar
HIST 459  (3)  Modern Medicine: Research
HIST 470D1  (3)  Topics: Historical Interpretation
HIST 470D2  (3)  Topics: Historical Interpretation
HIST 477D1  (3)  Seminar in Jewish History
HIST 477D2  (3)  Seminar in Jewish History
HIST 492D1  (3)  Topics in Comparative History
HIST 492D2  (3)  Topics in Comparative History
HIST 552  (3)  International Relations: Seminar
HIST 553  (3)  International Relations: Research
HIST 560  (3)  World History: Seminar
HIST 561  (3)  World History: Research

Courses Offered by Other Units

The following course(s) may be chosen by History Major concentration and Honours students as part of their programs.

Please consult with History Department program advisers for courses that do not appear here.

Anthropology (ANTH)

ANTH 306  (3)  Native Peoples' History in Canada

Art History (ARTH)

Please consult with History Department program advisers.

Canadian Studies (CANS)

Please consult with History Department program advisers.
Islamic Studies (ISLA)

Please consult with History Department program advisers.

Jewish Studies (JWST)

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>JWST 305</td>
<td>(3)</td>
<td>American Jewish History / Colonial Era to WWI</td>
</tr>
<tr>
<td>JWST 306</td>
<td>(3)</td>
<td>The American Jewish Community</td>
</tr>
<tr>
<td>JWST 356</td>
<td>(3)</td>
<td>Jewish Labour Movement/Eastern Europe</td>
</tr>
<tr>
<td>JWST 357</td>
<td>(3)</td>
<td>Jewish Labour Movement/North America</td>
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</table>

Quebec Studies (QCST)

Please consult with History Department program advisers.

Bachelor of Arts (B.A.) - Joint Honours Component History (36 credits)

Students who wish to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable).

Students must maintain a 3.30 grade point average in their program courses and must have no less than a "B" in any program course. In addition, and in accordance with Faculty of Arts rules, students must maintain an overall CGPA of 3.00.

Note: AP/IB credits may not be counted toward history program credits but may be considered as having met prerequisites for upper-level courses. Students should consult the Honours Program Adviser.

Required Course (3 credits)

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>HIST 399</td>
<td>(3)</td>
<td>History and Historical Methods</td>
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</table>

Complementary Courses (33 credits)

33 credits selected from the areas of History course lists (The Americas, Europe, Asia/Africa/Middle East, and Global/Thematic) with the following stipulations:

A maximum of 12 credits at the 200 level or lower.

A maximum of 27 credits in any one of the areas.

A minimum of 6 credits of Honours seminars (these are listed with their thematic area). Each Honours seminar comprises a 6-credit course with a D1/D2 course number or two 3-credit courses to be taken consecutively. The second term component includes the completion of a major research paper based substantially on primary-source research. Both parts of a D1/D2 seminar must be completed to receive credit. The first course of a two-part seminar may be taken alone in exceptional circumstances, but in that case will be counted towards the complementary course component of the program only and will not be counted as an Honours seminar.

The Americas - FYS & 200 Level

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>HIST 197</td>
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<td>FYS: Race in Latin America</td>
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<tr>
<td>HIST 202</td>
<td>(3)</td>
<td>Survey: Canada to 1867</td>
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<td>HIST 203</td>
<td>(3)</td>
<td>Survey: Canada since 1867</td>
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<tr>
<td>HIST 211</td>
<td>(3)</td>
<td>American History to 1865</td>
</tr>
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<td>HIST 221</td>
<td>(3)</td>
<td>United States since 1865</td>
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<td>HIST 223</td>
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<td>Natives of the Americas</td>
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The Americas - 300 Level

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<td>Nationalisms in Canada</td>
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<td>HIST 301</td>
<td>(3)</td>
<td>U.S. Presidential Campaigning</td>
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<td>HIST 303</td>
<td>(3)</td>
<td>History of Quebec</td>
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<td>HIST 309</td>
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### The Americas - 400 Level

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<td>(3)</td>
<td>History of Quebec Institutions</td>
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<td>(3)</td>
<td>Colonialism and Native Peoples</td>
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<tr>
<td>HIST 409</td>
<td>(3)</td>
<td>Themes in Latin American History 2</td>
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<tr>
<td>HIST 414</td>
<td>(3)</td>
<td>Canadian Cultural History</td>
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<tr>
<td>HIST 419</td>
<td>(3)</td>
<td>Central America</td>
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<tr>
<td>HIST 423</td>
<td>(3)</td>
<td>Topics: Migration and Ethnicity</td>
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<td>HIST 429</td>
<td>(3)</td>
<td>Topics: Canadian Family History</td>
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<tr>
<td>HIST 431</td>
<td>(3)</td>
<td>Topics in U.S. History</td>
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<tr>
<td>HIST 432</td>
<td>(3)</td>
<td>The Atlantic Provinces</td>
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<tr>
<td>HIST 434</td>
<td>(3)</td>
<td>British North America 1760-1867</td>
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<tr>
<td>HIST 447</td>
<td>(3)</td>
<td>The Natural History of America</td>
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### The Americas - 500 Level

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<tr>
<td>HIST 408</td>
<td>(3)</td>
<td>Colonialism and Native Peoples</td>
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<td>HIST 409</td>
<td>(3)</td>
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<td>(3)</td>
<td>Canadian Cultural History</td>
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<tr>
<td>HIST 419</td>
<td>(3)</td>
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<td>HIST 423</td>
<td>(3)</td>
<td>Topics: Migration and Ethnicity</td>
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<td>(3)</td>
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<td>(3)</td>
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<tr>
<td>HIST 530</td>
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<td>U.S. Foreign Relations</td>
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<tr>
<td>HIST 583</td>
<td>3</td>
<td>Conservatism in Canada</td>
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**The Americas - Honours Seminars**

Honours two-part seminar in the list below: HIST 556/HIST 557.

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<td>HIST 462D1</td>
<td>3</td>
<td>Topics: Canadian Conservatism</td>
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<tr>
<td>HIST 462D2</td>
<td>3</td>
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<td>HIST 463D1</td>
<td>3</td>
<td>Topics: History of Women in Canada</td>
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<td>HIST 463D2</td>
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<td>3</td>
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<tr>
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<td>3</td>
<td>Topics: 19th Century U.S. History</td>
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<td>HIST 556</td>
<td>3</td>
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<td>HIST 580D1</td>
<td>3</td>
<td>European and Native-American Encounters</td>
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<td>European and Native-American Encounters</td>
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<td>French Atlantic Worlds: Seminar</td>
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**Asia/Africa/Middle East - 200 Level**

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<td>HIST 201</td>
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<td>Modern African History</td>
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<tr>
<td>HIST 206</td>
<td>3</td>
<td>Africa and the Indian Ocean World</td>
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<td>HIST 208</td>
<td>3</td>
<td>Introduction to East Asian History</td>
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<td>HIST 218</td>
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**Asia/Africa/Middle East - 300 Level**

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<td>HIST 318</td>
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<td>HIST 328</td>
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<td>The Qing Empire</td>
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<td>HIST 337</td>
<td>3</td>
<td>Japanese Intellectual History 1</td>
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<td>HIST 338</td>
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<td>Twentieth-Century China</td>
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<td>Arab-Israeli Conflict</td>
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<td>The Chinese Family in History</td>
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<td>China: Science-Medicine-Technology</td>
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<td>Medieval to Early Modern China</td>
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<td>HIST 359</td>
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<td>History of Japan 2</td>
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<tr>
<td>HIST 374</td>
<td>3</td>
<td>West Africa since 1800</td>
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<td>HIST 381</td>
<td>3</td>
<td>Colonial Africa: Health/Disease</td>
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**Asia/Africa/Middle East - 400 Level**

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<td>Ancient Greece, Rome and China</td>
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<td>HIST 420</td>
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<td>Gender and Sexuality in Modern China</td>
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<td>HIST 439</td>
<td>3</td>
<td>History of Women in China</td>
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<td>HIST 441</td>
<td>3</td>
<td>Topics: Culture and Ritual in China</td>
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<td>3</td>
<td>Asian Diaspora: Chinese Overseas</td>
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<td>China in the Modern World</td>
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<td>British Colonies: Africa and Asia</td>
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<td>Late Imperial China</td>
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<td>Women, Gender and Sexuality in the Middle East</td>
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<td>HIST 478</td>
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<td>Pre-modern Chinese Law and Society</td>
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**Asia/Africa/Middle East - 500 Level**

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<td>The Arts of Healing in China</td>
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<td>3</td>
<td>The Art of War in China</td>
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**Asia/Africa/Middle East - Honours Seminars**

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<td>3</td>
<td>Topics: African Social History</td>
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<td>Topics: African Social History</td>
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**Europe - FYS & 200 Level**

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<td>3</td>
<td>History of Great Britain to 1688</td>
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<td>HIST 205</td>
<td>3</td>
<td>Ancient Mediterranean History</td>
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<td>HIST 214</td>
<td>3</td>
<td>Introduction to European History</td>
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<td>HIST 215</td>
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<td>HIST 216</td>
<td>3</td>
<td>History of Russia to 1801</td>
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<td>HIST 224</td>
<td>200</td>
<td>Britain Since 1688</td>
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<td>History of France to 1789</td>
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<td>Eastern Europe in 20th Century</td>
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<td>Archaeology of the Ancient World</td>
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### Europe - 300 Level

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<td>France, 1914 to the Present</td>
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**Europe - 400 Level**

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<td>Petrine and Catherinian Russia</td>
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<td>HIST 407</td>
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<td>Women and Gender in Modern Britain</td>
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<td>British &amp; Irish Nationalisms</td>
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**Europe - 500 Level**

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**Europe - Honours Seminars**

Honours two-part seminars in the list below: HIST 466/HIST 496, HIST 550/HIST 551, HIST 565/HIST 566.

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**Global/Thematic - FYS & 200 Level**

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<td>FYS: Jewish Concepts of Others</td>
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<td>FYS: Weather/Climate/History</td>
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<td>Jewish History: 1000 - 2000</td>
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<td>Health and the Healer in Western History</td>
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**Global/Thematic - 300 Level**

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<td>International Relations History 2: Cold War</td>
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<td>HIST 310</td>
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<td>Knowledge and Atlantic Empire</td>
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<td>HIST 315</td>
<td>3</td>
<td>Themes in World History</td>
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<td>HIST 317</td>
<td>3</td>
<td>Introduction to Indian Ocean World History</td>
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<td>HIST 319</td>
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<td>The Scientific Revolution</td>
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<td>HIST 323</td>
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<td>History and Sexuality 1</td>
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<td>HIST 347</td>
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HIST 388 (3) The Second World War

Global/Thematic - 400 Level

HIST 408 (3) Colonialism and Native Peoples
HIST 410 (3) Topics in History of Science
HIST 418 (3) Topics: Atlantic World
HIST 424 (3) Gender, Sexuality & Medicine
HIST 427 (3) The Hasidic Movement
HIST 430 (3) Topics in Modern Medicine
HIST 438 (3) Topics in Cold War History
HIST 440 (3) Fiction and History
HIST 457 (3) Topics in Medical History

Global/Thematic - 500 Level

HIST 525 (3) Women, Work and Family in Global History
HIST 526 (3) Women and War
HIST 527 (3) Topics: Indian Ocean World History
HIST 528 (3) Indian Ocean World Slave Trade
HIST 585 (3) Theory for Historical Studies
HIST 590 (3) Topics: The British Empire

Global/Thematic - Honours Seminars

Honours two-part seminars in the list below: HIST 454/HIST 455, HIST 458/HIST 459, HIST 552/HIST 553, HIST 560/HIST 561.

HIST 454 (3) Seminar: Early Modern Medicine
HIST 455 (3) Research: Early Modern Medicine
HIST 458 (3) Modern Medicine: Seminar
HIST 459 (3) Modern Medicine: Research
HIST 470D1 (3) Topics: Historical Interpretation
HIST 470D2 (3) Topics: Historical Interpretation
HIST 477D1 (3) Seminar in Jewish History
HIST 477D2 (3) Seminar in Jewish History
HIST 492D1 (3) Topics in Comparative History
HIST 492D2 (3) Topics in Comparative History
HIST 552 (3) International Relations: Seminar
HIST 553 (3) International Relations: Research
HIST 560 (3) World History: Seminar
HIST 561 (3) World History: Research

Courses Offered by Other Units

The following course(s) may be chosen by History Major concentration and Honours students as part of their programs.
Please consult with History Department program advisers for courses that do not appear here.

Anthropology (ANTH)
ANTH 306 (3) Native Peoples' History in Canada

Art History (ARTH)
Please consult with History Department program advisers.

Canadian Studies (CANS)
Please consult with History Department program advisers.

Islamic Studies (ISLA)
Please consult with History Department program advisers.

Jewish Studies (JWST)
JWST 305 (3) American Jewish History / Colonial Era to WWI
JWST 306 (3) The American Jewish Community
JWST 356 (3) Jewish Labour Movement/Eastern Europe
JWST 357 (3) Jewish Labour Movement/North America

Quebec Studies (QCST)
Please consult with History Department program advisers.

3.11.27 History and Philosophy of Science (HPSC)

3.11.27.1 Location

Interdisciplinary Programs Office, Faculty of Arts
Dawson Hall, Room 112B
853 Sherbrooke Street West
Montreal, Quebec H3A 2T6

Telephone: 514-398-4400 ext. 09557
Fax: 514-398-7185
Email: interdisciplinary.arts@mcgill.ca
Website: www.mcgill.ca/hpsc

3.11.27.2 About History and Philosophy of Science

History and Philosophy of Science at McGill is an interdisciplinary program that aims to provide students with an understanding of science through the study of both its historical development and of some of the fundamental philosophical principles upon which it rests. In addition, there is an ongoing seminar series of talks by visiting speakers. Please visit www.mcgill.ca/hpsc/seminars and www.mcgill.ca/hpsc/lectures.

3.11.27.3 History and Philosophy of Science (HPSC) Faculty

Adviser
Karin Bourgeois

Program Committee Chair
Nicholas Dew (History)

Program Committee
Darin Barney (Art History and Communication Studies)
Emily Carson (Philosophy)
Stephen Menn (Philosophy)
Program Committee

Greg Mikkelson (Philosophy)
Thomas Schlich (Social Studies of Medicine)
Dirk Schlimm (Philosophy)

3.11.27.4 Bachelor of Arts (B.A.) - Minor Concentration History and Philosophy of Science (18 credits)

History and Philosophy of Science at McGill is an interdisciplinary program that aims to provide students with an understanding of science through the study of both its historical development and of some of the fundamental philosophical principles upon which it rests. There is an ongoing seminar series of talks by visiting speakers; please visit http://www.mcgill.ca/hpsc/seminars/ and http://www.mcgill.ca/hpsc/lectures/.

Complementary Courses (18 credits)

18 credits with a maximum of 9 credits at the 200 level selected as follows:

Philosophy of Science

6-12 credits of courses focused on the Philosophy of Science with no more than 6 credits at the 200 level chosen from the following:

Communication Studies (COMS)

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<td>COMS 410</td>
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History and Philosophy of Science (HPSC)

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<td>HPSC 500</td>
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<td>Interdisciplinary Seminar: History &amp; Philosophy of Science</td>
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Philosophy (PHIL)

Either PHIL 210 or PHIL 310 may count toward the program but not both.

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<td>PHIL 306</td>
<td>(3)</td>
<td>Philosophy of Mind</td>
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<td>PHIL 310</td>
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<td>Philosophy of the Social Sciences 1</td>
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<td>PHIL 341</td>
<td>(3)</td>
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<td>(3)</td>
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<td>PHIL 411</td>
<td>(3)</td>
<td>Topics in Philosophy of Logic and Mathematics</td>
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Religious Studies (RELG)

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Sociology (SO CI)
SO CI 338 (3) Introduction to Biomedical Knowledge

History of Science
6-12 credits of courses focused on the History of Science with no more than 6 credits at the 200 level chosen from the following:

Anthropology (ANTH)
ANTH 359 (3) History of Archaeological Theory

Biology (BIOL)
BIOL 210 (3) Perspectives of Science

Geography (GEOG)
GEOG 381 (3) Geographic Thought and Practice

History (HIST)
HIST 249 (3) Health and the Healer in Western History
HIST 319 (3) The Scientific Revolution
HIST 335 (3) Science and Medicine in Canada
HIST 348 (3) China: Science-Medicine-Technology
HIST 350 (3) Science and the Enlightenment
HIST 356 (3) Medicine in the Medieval West
HIST 381 (3) Colonial Africa: Health/Disease
HIST 410 (3) Topics in History of Science
HIST 447 (3) The Natural History of America
HIST 452 (3) Medicine in Europe 1500-1700
HIST 457 (3) Topics in Medical History
HIST 458 (3) Modern Medicine: Seminar
HIST 459 (3) Modern Medicine: Research
HIST 466 (3) Seminar: Medieval Medicine
HIST 496 (3) Research: Medieval Medicine

History and Philosophy of Science (HPSC)
HPSC 300 (3) Independent Studies: History and Philosophy of Science
HPSC 500 (3) Interdisciplinary Seminar: History & Philosophy of Science

Islamic Studies (ISLA)
ISLA 345 (3) Science and Civilization in Islam

Mathematics (MATH)
MATH 338 (3) History and Philosophy of Mathematics
MATH 339 (3) Foundations of Mathematics

Psychology (PSYC)

PSYC 403 (3) Modern Psychology in Historical Perspective

3.11.28 Humanistic Studies (HMST)

3.11.28.1 Location

Dawson Hall, Room 110
853 Sherbrooke Street West
Montreal, Quebec H3A 2T6

Telephone: 514-398-1029
Fax: 514-398-7185
Email: humanisticstudies.arts@mcgill.ca
Website: www.mcgill.ca/humanistic

Note: As of January 1, 2010, no new admissions to the Minor Concentration in Humanistic Studies or the Major Concentration in Humanistic Studies will be accepted. Students registered in these programs prior to January 1, 2010 will be permitted to complete them.

3.11.28.2 Advising for In-Program Students

Students are strongly encouraged to seek advising. Courses should be “clustered” so that different fields complement each other or are interconnected. Students are strongly advised to take this program in tandem with concentrations in language and literature. Telephone 514-398-1029 to set up an appointment.

3.11.29 Industrial Relations

3.11.29.1 Location

Dawson Hall, Room 112B
853 Sherbrooke Street West
Montreal, Quebec H3A 2T6

Telephone: 514-398-4400 ext. 09557
Fax: 514-398-7185
Email: interdisciplinary.arts@mcgill.ca
Website: www.mcgill.ca/indr

3.11.29.2 About Industrial Relations

Industrial Relations is an interdisciplinary program, enabling students in the Faculty of Arts to study Labour-Management Relations. Students take courses in Economics, Labour-Management Relations, and Sociology. These courses examine the economic and social forces affecting employer-employee relations in both national and global contexts.

3.11.29.3 Further Information

Changes may be made in the program after this publication was prepared. For the most up-to-date information on the program, new and returning students should refer to the website: www.mcgill.ca/indr.

3.11.29.4 Adviser

Karin Bourgeois
Telephone: 514-398-4400 ext. 09557
Email: karin.bourgeois@mcgill.ca
The Faculty Program in Industrial Relations provides students with a basic knowledge of industrial relations institutions and practices as well as the principal social and economic forces that underlie them. The program is composed of 54 credits of courses drawn from the Departments of Economics and Sociology within the Faculty of Arts and from Labour-Management Relations within the Desautels Faculty of Management.

Credits outside Arts and Science: Students in the Faculty Program in Industrial Relations may take no more than 30 credits in courses outside of the Faculties of Arts and of Science. This total includes required and complementary courses taken for the IR Program and elective courses. Moreover, in the U1 year a student should take at most only one 3-credit elective course in the Desautels Faculty of Management in addition to the required courses, INDR 294 and MGCR 222.

Faculty of Arts regulations about "Courses Outside the Faculties of Arts and of Science" may be found with the Arts guidelines for "Course Requirements."

### Continuance in the Program:

To remain in the program beyond the first year, students must take the six "U1 Required Courses" listed below during their first year and earn a 2.50 GPA in ECON 208, ECON 209, INDR 294, MGCR 222, SOCI 235, and SOCI 312.

Note: Continuing Education courses may not be used to fulfill IR program requirements. Similarly, courses in Continuing Education taken before entering the program may not be used to fulfil program requirements.

### Required Courses (42 credits)

#### U1 Required

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 208</td>
<td>3</td>
<td>Microeconomic Analysis and Applications</td>
</tr>
<tr>
<td>ECON 209</td>
<td>3</td>
<td>Macroeconomic Analysis and Applications</td>
</tr>
<tr>
<td>INDR 294</td>
<td>3</td>
<td>Introduction to Labour-Management Relations</td>
</tr>
<tr>
<td>MGCR 222</td>
<td>3</td>
<td>Introduction to Organizational Behaviour</td>
</tr>
<tr>
<td>SOCI 235</td>
<td>3</td>
<td>Technology and Society</td>
</tr>
<tr>
<td>SOCI 312</td>
<td>3</td>
<td>Sociology of Work and Industry</td>
</tr>
</tbody>
</table>

#### U2 Required

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDR 494</td>
<td>3</td>
<td>Labour Law</td>
</tr>
<tr>
<td>ORGB 423</td>
<td>3</td>
<td>Human Resources Management</td>
</tr>
<tr>
<td>SOCI 304</td>
<td>3</td>
<td>Sociology of the Welfare State</td>
</tr>
<tr>
<td>SOCI 420</td>
<td>3</td>
<td>Organizations</td>
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#### U3 Required

<table>
<thead>
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<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDR 492</td>
<td>3</td>
<td>Globalization and Labour Policy</td>
</tr>
<tr>
<td>INDR 496</td>
<td>3</td>
<td>Collective Bargaining</td>
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</tbody>
</table>

### Complementary Courses (12 credits)

#### U2 Complementary

6 credits of statistics courses (either Economics or Sociology but not both):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ECON 227D1</td>
<td>3</td>
<td>Economic Statistics</td>
</tr>
<tr>
<td>ECON 227D2</td>
<td>3</td>
<td>Economic Statistics</td>
</tr>
<tr>
<td>SOCI 350</td>
<td>3</td>
<td>Statistics in Social Research</td>
</tr>
<tr>
<td>SOCI 461</td>
<td>3</td>
<td>Quantitative Data Analysis</td>
</tr>
</tbody>
</table>

#### U3 Complementary

6 credits from the following:
3.11.30 **International Development Studies (INTD)**

3.11.30.1 **Location**

Institute for the Study of International Development  
Peterson Hall, Room 126  
3460 McTavish Street  
Montreal, Quebec H3A 1X9

Telephone: 514-398-4804  
Fax: 514-398-8432  
Email: ids@mcgill.ca  
Website: www.mcgill.ca/isid

3.11.30.2 **About International Development Studies**

The International Development Studies (IDS) program is designed for those students who wish to take advantage of the resources available at McGill to pursue an interdisciplinary program of study focusing on the problems of the developing countries.

Most courses above the 200 level have prerequisites. Although these may be waived by instructors in some cases, students are urged to confirm their eligibility for courses when they prepare their programs of study. Note that certain courses (especially those in Management) may not be available owing to space limitations. Students should check the Class Schedule on Minerva for confirmation as to which term courses are offered.

3.11.30.3 **International Development Studies (INTD) Faculty**

**Program Chair**

P. Oxhorn, Political Science (*Director, Institute for the Study of International Development*)

**Program Adviser**

Lisa Stanischewski

**Program Committee**

Oliver Coomes (*Geography*)
Kathleen Fallon (*Sociology*)
Franque Grimard (*Economics*)
Erik Kuhonta (*Political Science*)
John Kurien (*Economics*)
Matthew Lange (*Sociology*)
Sonia Laszlo (*Economics*)
Kristin Norget (*Anthropology*)
Program Committee

Daviken Studnicki-Gizbert (History and Classical Studies)
Jon Unruh (Geography)

Faculty Lecturer

P. Pushkar; B.A.(Delhi), M.A., M.Phil(JNU), Ph.D.(McG.)

3.11.30.4 Bachelor of Arts (B.A.) - Minor Concentration International Development Studies (18 credits)

This program may be expanded to the Major Concentration International Development Studies.

Course Selection Guidelines for the Overall Program

1. At least 9 of the 18 credits must be at the 300 level or above.
2. Students may complete the Minor concentration with no more than 9 credits in total from any one discipline.

Required Courses (9 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 208</td>
<td>3</td>
<td>Microeconomic Analysis and Applications</td>
</tr>
<tr>
<td>ECON 313</td>
<td>3</td>
<td>Economic Development 1</td>
</tr>
<tr>
<td>INTD 200</td>
<td>3</td>
<td>Introduction to International Development</td>
</tr>
</tbody>
</table>

Complementary Courses (9 credits)

Introductory

3 credits from the following introductory courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>ANTH 202</td>
<td>3</td>
<td>Comparative Cultures</td>
</tr>
<tr>
<td>ANTH 212</td>
<td>3</td>
<td>Anthropology of Development</td>
</tr>
<tr>
<td>GEOG 210</td>
<td>3</td>
<td>Global Places and Peoples</td>
</tr>
<tr>
<td>GEOG 216</td>
<td>3</td>
<td>Geography of the World Economy</td>
</tr>
<tr>
<td>POLI 227</td>
<td>3</td>
<td>Developing Areas/Introduction</td>
</tr>
<tr>
<td>SOCI 254</td>
<td>3</td>
<td>Development and Underdevelopment</td>
</tr>
</tbody>
</table>

Streams

6 credits from any of the four streams:

Stream 1: Economic Development and Living Standards
Stream 2: States and Governance
Stream 3: Culture and Society
Stream 4: Environment and Agricultural Resources

Stream 1: Economic Development and Living Standards

Experience has shown that development requires economic growth and is shaped by the distribution of economic resources. At the same time, the globalized economy has created new opportunities and new challenges for sustained growth. Courses in this stream revolve around the factors contributing to sustained economic growth, the trade-offs associated with different ways of achieving it, and the distributional issues development inevitably raises. More generally, this stream is also concerned with understanding what "development" actually entails in different contexts.

Stream 1 - Agriculture

AGRI 411 (3) Global Issues on Development, Food and Agriculture

Stream 1 - Agricultural Economics
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGEC 430</td>
<td>(3)</td>
<td>Agriculture, Food and Resource Policy</td>
</tr>
<tr>
<td>AGEC 442</td>
<td>(3)</td>
<td>Economics of International Agricultural Development</td>
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</tbody>
</table>

**Stream 1 - Anthropology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>ANTH 227</td>
<td>(3)</td>
<td>Medical Anthropology</td>
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</table>

**Stream 1 - Economics**

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 209</td>
<td>(3)</td>
<td>Macroeconomic Analysis and Applications</td>
</tr>
<tr>
<td>ECON 223</td>
<td>(3)</td>
<td>Political Economy of Trade Policy</td>
</tr>
<tr>
<td>ECON 314</td>
<td>(3)</td>
<td>Economic Development 2</td>
</tr>
<tr>
<td>ECON 326</td>
<td>(3)</td>
<td>Ecological Economics</td>
</tr>
<tr>
<td>ECON 336</td>
<td>(3)</td>
<td>The Chinese Economy</td>
</tr>
<tr>
<td>ECON 411</td>
<td>(3)</td>
<td>Economic Development: A World Area</td>
</tr>
<tr>
<td>ECON 416</td>
<td>(3)</td>
<td>Topics in Economic Development 2</td>
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</tbody>
</table>

**Stream 1 - Geography**

<table>
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<tr>
<th>Course Code</th>
<th>Units</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>GEOG 310</td>
<td>(3)</td>
<td>Development and Livelihoods</td>
</tr>
<tr>
<td>GEOG 403</td>
<td>(3)</td>
<td>Global Health and Environmental Change</td>
</tr>
<tr>
<td>GEOG 409</td>
<td>(3)</td>
<td>Geographies of Developing Asia</td>
</tr>
<tr>
<td>GEOG 508</td>
<td>(3)</td>
<td>Resources, People and Power</td>
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</table>

**Stream 1 - History**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 348</td>
<td>(3)</td>
<td>China: Science-Medicine-Technology</td>
</tr>
<tr>
<td>HIST 381</td>
<td>(3)</td>
<td>Colonial Africa: Health/Disease</td>
</tr>
<tr>
<td>HIST 396</td>
<td>(3)</td>
<td>Disease in Africa Since 1960</td>
</tr>
</tbody>
</table>

**Stream 1 - International Development Studies**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTD 397</td>
<td>(3)</td>
<td>Topics in International Development</td>
</tr>
<tr>
<td>INTD 490</td>
<td>(3)</td>
<td>Development Field Research</td>
</tr>
<tr>
<td>INTD 499</td>
<td>(3)</td>
<td>Internship: International Development Studies</td>
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</table>

**Stream 1 - Management Core**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>MGCR 360</td>
<td>(3)</td>
<td>Social Context of Business</td>
</tr>
<tr>
<td>MGCR 382</td>
<td>(3)</td>
<td>International Business</td>
</tr>
</tbody>
</table>

**Stream 1 - Management Policy**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGPO 475</td>
<td>(3)</td>
<td>Strategies for Developing Countries</td>
</tr>
</tbody>
</table>

**Stream 1 - Mining and Materials Engineering**

<table>
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<tr>
<th>Course Code</th>
<th>Units</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIME 524</td>
<td>(3)</td>
<td>Mineral Resources Economics</td>
</tr>
</tbody>
</table>
Stream 1 - Natural Resource Sciences
NRSC 340 (3) Global Perspectives on Food
NRSC 540 (3) Socio-Cultural Issues in Water

Stream 1 - Political Science
POLI 423 (3) Politics of Ethno-Nationalism
POLI 445 (3) International Political Economy: Monetary Relations

Stream 1 - Sociology
SOCI 307 (3) Sociology of Globalization
SOCI 309 (3) Health and Illness
SOCI 365 (3) Health and Development
SOCI 513 (3) Social Aspects HIV/AIDS in Africa

Stream 2: States and Governance
The courses in this stream focus on how political institutions shape developmental processes. Some courses analyze states and recognize how some promote development by providing diverse developmental goods while others impede development by preying on their peoples. Other courses focus on regimes and consider how political rights and participation, or their absences, affect developmental processes. Finally, several courses consider factors that make possible effective states and regimes.

Stream 2 - Anthropology
ANTH 342 (3) Gender, Inequality and the State
ANTH 512 (3) Political Ecology

Stream 2 - Economics
ECON 223 (3) Political Economy of Trade Policy

Stream 2 - International Development Studies
INTD 397 (3) Topics in International Development
INTD 490 (3) Development Field Research
INTD 499 (3) Internship: International Development Studies

Stream 2 - Islamic Studies
ISLA 360 (3) Islam and Politics
ISLA 383 (3) Central Questions in Islamic Law

Stream 2 - Political Science
POLI 319 (3) Politics of Latin America
POLI 322 (3) Political Change in South Asia
POLI 323 (3) Developing Areas/China and Japan
POLI 324 (3) Developing Areas/Africa
POLI 340 (3) Developing Areas/Middle East
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLI 345</td>
<td>3</td>
<td>International Organizations</td>
</tr>
<tr>
<td>POLI 347</td>
<td>3</td>
<td>Arab-Israel Conflict, Crisis, Peace</td>
</tr>
<tr>
<td>POLI 349</td>
<td>3</td>
<td>Foreign Policy: Asia</td>
</tr>
<tr>
<td>POLI 369</td>
<td>3</td>
<td>Politics of Southeast Asia</td>
</tr>
<tr>
<td>POLI 423</td>
<td>3</td>
<td>Politics of Ethno-Nationalism</td>
</tr>
<tr>
<td>POLI 445</td>
<td>3</td>
<td>International Political Economy: Monetary Relations</td>
</tr>
<tr>
<td>POLI 450</td>
<td>3</td>
<td>Peacebuilding</td>
</tr>
<tr>
<td>POLI 473</td>
<td>3</td>
<td>Democracy and the Market</td>
</tr>
<tr>
<td>POLI 474</td>
<td>3</td>
<td>Inequality and Development</td>
</tr>
<tr>
<td>POLI 522</td>
<td>3</td>
<td>Seminar: Developing Areas</td>
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</table>

**Stream 2 - Sociology**

<table>
<thead>
<tr>
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<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>SOCI 265</td>
<td>3</td>
<td>War, States and Social Change</td>
</tr>
<tr>
<td>SOCI 484</td>
<td>3</td>
<td>Emerging Democratic States</td>
</tr>
<tr>
<td>SOCI 550</td>
<td>3</td>
<td>Developing Societies</td>
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</tbody>
</table>

**Stream 2 - Social Work**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWRK 400</td>
<td>3</td>
<td>Policy and Practice for Refugees</td>
</tr>
</tbody>
</table>

**Stream 3: Culture and Society**

The courses in this stream focus on how the social structures, history, and culture of populations affect developmental processes. Associations, class, gender, religion, race, and ethnicity, for example, all shape development in multiple and diverse ways. Moreover, present developmental processes oftentimes cannot be adequately understood without considering history. Culture, in turn, is increasingly recognized within development studies as both a determinant and a constitutive element of development. In exploring all three, the courses in this stream provide important insight into the complex and varied relationship between social context and development.

**Stream 3 - Anthropology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 209</td>
<td>3</td>
<td>Anthropology of Religion</td>
</tr>
<tr>
<td>ANTH 301</td>
<td>3</td>
<td>Nomadic Pastoralists</td>
</tr>
<tr>
<td>ANTH 318</td>
<td>3</td>
<td>Globalization and Religion</td>
</tr>
<tr>
<td>ANTH 322</td>
<td>3</td>
<td>Social Change in Modern Africa</td>
</tr>
<tr>
<td>ANTH 326</td>
<td>3</td>
<td>Anthropology of Latin America</td>
</tr>
<tr>
<td>ANTH 327</td>
<td>3</td>
<td>Peoples of South Asia</td>
</tr>
<tr>
<td>ANTH 329</td>
<td>3</td>
<td>Modern Chinese Society and Change</td>
</tr>
<tr>
<td>ANTH 341</td>
<td>3</td>
<td>Women in Cross-cultural Perspective</td>
</tr>
<tr>
<td>ANTH 342</td>
<td>3</td>
<td>Gender, Inequality and the State</td>
</tr>
<tr>
<td>ANTH 422</td>
<td>3</td>
<td>Contemporary Latin American Culture &amp; Society</td>
</tr>
<tr>
<td>ANTH 500</td>
<td>3</td>
<td>Chinese Diversity and Diaspora</td>
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</table>

**Stream 3 - East Asian Studies**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>EAST 211</td>
<td>3</td>
<td>Introduction: East Asian Culture: China</td>
</tr>
<tr>
<td>EAST 213</td>
<td>3</td>
<td>Introduction: East Asian Culture: Korea</td>
</tr>
</tbody>
</table>

**Stream 3 - History**
Students may count either HIST 339 or POLI 347 toward Stream 3 but not both. See the Political Science course list for Stream 3.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>HIST 197</td>
<td>3</td>
<td>FYS: Race in Latin America</td>
</tr>
<tr>
<td>HIST 200</td>
<td>3</td>
<td>Introduction to African History</td>
</tr>
<tr>
<td>HIST 201</td>
<td>3</td>
<td>Modern African History</td>
</tr>
<tr>
<td>HIST 213</td>
<td>3</td>
<td>World History, 1300-2000</td>
</tr>
<tr>
<td>HIST 218</td>
<td>3</td>
<td>Modern East Asian History</td>
</tr>
<tr>
<td>HIST 309</td>
<td>3</td>
<td>History of Latin America to 1825</td>
</tr>
<tr>
<td>HIST 338</td>
<td>3</td>
<td>Twentieth-Century China</td>
</tr>
<tr>
<td>HIST 339</td>
<td>3</td>
<td>Arab-Israeli Conflict</td>
</tr>
<tr>
<td>HIST 360</td>
<td>3</td>
<td>Latin America since 1825</td>
</tr>
<tr>
<td>HIST 366</td>
<td>3</td>
<td>Themes in Latin American History 1</td>
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<tr>
<td>HIST 382</td>
<td>3</td>
<td>History of South Africa</td>
</tr>
<tr>
<td>HIST 419</td>
<td>3</td>
<td>Central America</td>
</tr>
<tr>
<td>HIST 448</td>
<td>3</td>
<td>Women, Gender and Sexuality in the Middle East</td>
</tr>
<tr>
<td>HIST 528</td>
<td>3</td>
<td>Indian Ocean World Slave Trade</td>
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</table>

**Stream 3 - Integrated Studies in Education**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDER 461</td>
<td>3</td>
<td>Society and Change</td>
</tr>
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</table>

**Stream 3 - International Development Studies**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>INTD 397</td>
<td>3</td>
<td>Topics in International Development</td>
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<tr>
<td>INTD 490</td>
<td>3</td>
<td>Development Field Research</td>
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<tr>
<td>INTD 499</td>
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<td>Internship: International Development Studies</td>
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**Stream 3 - Islamic Studies**

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<td>ISLA 200</td>
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<td>Islamic Civilization</td>
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<td>ISLA 210</td>
<td>3</td>
<td>Muslim Societies</td>
</tr>
<tr>
<td>ISLA 345</td>
<td>3</td>
<td>Science and Civilization in Islam</td>
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<td>ISLA 355</td>
<td>3</td>
<td>Modern History of the Middle East</td>
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<tr>
<td>ISLA 360</td>
<td>3</td>
<td>Islam and Politics</td>
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<td>ISLA 365</td>
<td>3</td>
<td>Middle East Since the 1970's</td>
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<td>ISLA 383</td>
<td>3</td>
<td>Central Questions in Islamic Law</td>
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<tr>
<td>ISLA 411</td>
<td>3</td>
<td>History: Middle-East 1918-1945</td>
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<tr>
<td>ISLA 415</td>
<td>3</td>
<td>Modern Iran: Anthropological Approach</td>
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<tr>
<td>ISLA 421</td>
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<td>Islam in South Asia: 1757 to Present</td>
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**Stream 3 - Management, Organizational Behaviour**

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<tr>
<td>ORGB 380</td>
<td>3</td>
<td>Cross Cultural Management</td>
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</table>

**Stream 3 - Political Science**

Students may count either HIST 339 or POLI 347 toward Stream 3 but not both. See the History course list for Stream 3.

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<tr>
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<tbody>
<tr>
<td>POLI 347</td>
<td>3</td>
<td>Arab-Israeli Conflict, Crisis, Peace</td>
</tr>
</tbody>
</table>
Stream 4: Environment and Agricultural Resources

Within development studies, the environment has long been recognized as a vital determinant of development. More recently, many scholars have changed their environmental focus to emphasize sustainability. The courses in this stream recognize both: some courses consider how the environment can be exploited to promote human well-being while others consider how the environment must be respected to render development sustainable. Together, they highlight the delicate balance that must be attained between humans and their environments to make possible sustainable livelihoods.

Stream 4 - Agricultural Economics

AGEC 430 (3) Agriculture, Food and Resource Policy
AGEC 442 (3) Economics of International Agricultural Development

Stream 4 - Anthropology

ANTH 206 (3) Environment and Culture
ANTH 301 (3) Nomadic Pastoralists
ANTH 339 (3) Ecological Anthropology
ANTH 418 (3) Environment and Development
ANTH 512 (3) Political Ecology

Stream 4 - Economics

ECON 326 (3) Ecological Economics

Stream 4 - Geography

GEOG 302 (3) Environmental Management I
GEOG 403 (3) Global Health and Environmental Change
GEOG 408 (3) Geography of Development
GEOG 410 (3) Geography of Underdevelopment: Current Problems
GEOG 508 (3) Resources, People and Power
GEOG 510 (3) Humid Tropical Environments

Stream 4 - International Development Studies
INTD 397 (3) Topics in International Development
INTD 490 (3) Development Field Research
INTD 499 (3) Internship: International Development Studies

Stream 4 - Management Core
MGCR 360 (3) Social Context of Business

Stream 4 - Mining and Materials Engineering
MIME 524 (3) Mineral Resources Economics

Stream 4 - Natural Resource Sciences
NRSC 340 (3) Global Perspectives on Food
NRSC 540 (3) Socio-Cultural Issues in Water

Stream 4 - Nutrition
NUTR 501 (3) Nutrition in Developing Countries

Stream 4 - Urban Planning
URBP 506 (3) Environmental Policy and Planning
URBP 520 (3) Globalization: Planning and Change

3.11.30.5 Bachelor of Arts (B.A.) - Major Concentration International Development Studies (36 credits)

Course Selection Guidelines for the Overall Program
1. In their complete program (36 credits), students can take a maximum of 12 credits from any one discipline and must complete a minimum of 9 credits from two disciplines.
2. At least 18 of the 36 credits must be at the 300 level or above.
3. In the final year (U3), no program courses may be taken below the 300 level.

Required Courses (15 credits)
ECON 208 (3) Microeconomic Analysis and Applications
ECON 313 (3) Economic Development 1
ECON 314 (3) Economic Development 2
INTD 200 (3) Introduction to International Development
INTD 497 (3) Research Seminar on International Development

Complementary Courses (21 credits)
Introductory

6 credits from the following introductory courses (only one course from each discipline may be counted):

- ANTH 202 (3) Comparative Cultures
- ANTH 212 (3) Anthropology of Development
- GEOG 210 (3) Global Places and Peoples
- GEOG 216 (3) Geography of the World Economy
- POLI 227 (3) Developing Areas/Introduction
- SOCI 254 (3) Development and Underdevelopment

Streams

15 credits from one of the four streams:

Stream 1: Economic Development and Living Standards
Stream 2: States and Governance
Stream 3: Culture and Society
Stream 4: Environment and Agricultural Resources

Stream 1: Economic Development and Living Standards

Experience has shown that development requires economic growth and is shaped by the distribution of economic resources. At the same time, the globalized economy has created new opportunities and new challenges for sustained growth. Courses in this stream revolve around the factors contributing to sustained economic growth, the trade-offs associated with different ways of achieving it, and the distributional issues development inevitably raises. More generally, this stream is also concerned with understanding what "development" actually entails in different contexts.

Stream 1 - Agriculture

- AGRI 411 (3) Global Issues on Development, Food and Agriculture

Stream 1 - Agricultural Economics

- AGEC 430 (3) Agriculture, Food and Resource Policy
- AGEC 442 (3) Economics of International Agricultural Development

Stream 1 - Anthropology

- ANTH 227 (3) Medical Anthropology

Stream 1 - Economics

- ECON 209 (3) Macroeconomic Analysis and Applications
- ECON 223 (3) Political Economy of Trade Policy
- ECON 314 (3) Economic Development 2
- ECON 326 (3) Ecological Economics
- ECON 336 (3) The Chinese Economy
- ECON 411 (3) Economic Development: A World Area
- ECON 416 (3) Topics in Economic Development 2

Stream 1 - Geography

- GEOG 310 (3) Development and Livelihoods
- GEOG 403 (3) Global Health and Environmental Change
Stream 1 - History

HIST 348 (3) China: Science-Medicine-Technology
HIST 381 (3) Colonial Africa: Health/Disease
HIST 396 (3) Disease in Africa Since 1960

Stream 1 - International Development Studies

INTD 397 (3) Topics in International Development
INTD 490 (3) Development Field Research
INTD 499 (3) Internship: International Development Studies

Stream 1 - Management Core

MGCR 360 (3) Social Context of Business
MGCR 382 (3) International Business

Stream 1 - Management Policy

MGPO 475 (3) Strategies for Developing Countries

Stream 1 - Mining and Materials Engineering

MIME 524 (3) Mineral Resources Economics

Stream 1 - Natural Resource Sciences

NRSC 340 (3) Global Perspectives on Food
NRSC 540 (3) Socio-Cultural Issues in Water

Stream 1 - Political Science

POLI 423 (3) Politics of Ethno-Nationalism
POLI 445 (3) International Political Economy: Monetary Relations

Stream 1 - Sociology

SOCI 307 (3) Sociology of Globalization
SOCI 309 (3) Health and Illness
SOCI 365 (3) Health and Development
SOCI 513 (3) Social Aspects HIV/AIDS in Africa

Stream 2: States and Governance

The courses in this stream focus on how political institutions shape developmental processes. Some courses analyze states and recognize how some promote development by providing diverse developmental goods while others impede development by preying on their peoples. Other courses focus on regimes and consider how political rights and participation, or their absences, affect developmental processes. Finally, several courses consider factors that make possible effective states and regimes.
Stream 2 - Anthropology

ANTH 342 (3) Gender, Inequality and the State
ANTH 512 (3) Political Ecology

Stream 2 - Economics

ECON 223 (3) Political Economy of Trade Policy

Stream 2 - International Development Studies

INTD 397 (3) Topics in International Development
INTD 490 (3) Development Field Research
INTD 499 (3) Internship: International Development Studies

Stream 2 - Islamic Studies

ISLA 360 (3) Islam and Politics
ISLA 383 (3) Central Questions in Islamic Law

Stream 2 - Political Science

POLI 319 (3) Politics of Latin America
POLI 322 (3) Political Change in South Asia
POLI 323 (3) Developing Areas/China and Japan
POLI 324 (3) Developing Areas/Africa
POLI 340 (3) Developing Areas/Middle East
POLI 345 (3) International Organizations
POLI 347 (3) Arab-Israel Conflict, Crisis, Peace
POLI 349 (3) Foreign Policy: Asia
POLI 369 (3) Politics of Southeast Asia
POLI 423 (3) Politics of Ethno-Nationalism
POLI 445 (3) International Political Economy: Monetary Relations
POLI 450 (3) Peacebuilding
POLI 473 (3) Democracy and the Market
POLI 474 (3) Inequality and Development
POLI 522 (3) Seminar: Developing Areas

Stream 2 - Sociology

SOCI 265 (3) War, States and Social Change
SOCI 484 (3) Emerging Democratic States
SOCI 550 (3) Developing Societies

Stream 2 - Social Work

SWRK 400 (3) Policy and Practice for Refugees
Stream 3: Culture and Society

The courses in this stream focus on how the social structures, history, and culture of populations affect developmental processes. Associations, class, gender, religion, race, and ethnicity, for example, all shape development in multiple and diverse ways. Moreover, present developmental processes oftentimes cannot be adequately understood without considering history. Culture, in turn, is increasingly recognized within development studies as both a determinant and a constitutive element of development. In exploring all three, the courses in this stream provide important insight into the complex and varied relationship between social context and development.

Stream 3 - Anthropology

ANTH 209 (3) Anthropology of Religion
ANTH 301 (3) Nomadic Pastoralists
ANTH 318 (3) Globalization and Religion
ANTH 322 (3) Social Change in Modern Africa
ANTH 326 (3) Anthropology of Latin America
ANTH 327 (3) Peoples of South Asia
ANTH 329 (3) Modern Chinese Society and Change
ANTH 341 (3) Women in Cross-cultural Perspective
ANTH 342 (3) Gender, Inequality and the State
ANTH 422 (3) Contemporary Latin American Culture & Society
ANTH 500 (3) Chinese Diversity and Diaspora

Stream 3 - East Asian Studies

EAST 211 (3) Introduction: East Asian Culture: China
EAST 213 (3) Introduction: East Asian Culture: Korea

Stream 3 - History

Students may count either HIST 339 or POLI 347 toward Stream 3 but not both. See the Political Science course list for Stream 3.

HIST 197 (3) FYS: Race in Latin America
HIST 200 (3) Introduction to African History
HIST 201 (3) Modern African History
HIST 213 (3) World History, 1300-2000
HIST 218 (3) Modern East Asian History
HIST 309 (3) History of Latin America to 1825
HIST 338 (3) Twentieth-Century China
HIST 339 (3) Arab-Israeli Conflict
HIST 360 (3) Latin America since 1825
HIST 366 (3) Themes in Latin American History 1
HIST 382 (3) History of South Africa
HIST 419 (3) Central America
HIST 448 (3) Women, Gender and Sexuality in the Middle East
HIST 528 (3) Indian Ocean World Slave Trade

Stream 3 - Integrated Studies in Education

EDER 461 (3) Society and Change
### Stream 3 - International Development Studies

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### Stream 3 - Islamic Studies

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### Stream 3 - Management, Organizational Behaviour

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<td>Cross Cultural Management</td>
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### Stream 3 - Political Science

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<tbody>
<tr>
<td>POLI 347</td>
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<td>Arab-Israel Conflict, Crisis, Peace</td>
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<td>POLI 423</td>
<td>3</td>
<td>Politics of Ethno-Nationalism</td>
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<td>POLI 435</td>
<td>3</td>
<td>Identity and Inequality</td>
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<td>POLI 442</td>
<td>3</td>
<td>International Relations of Ethnic Conflict</td>
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<td>POLI 450</td>
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<td>Peacebuilding</td>
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<td>POLI 474</td>
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### Stream 3 - Religious Studies

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<td>RELG 371</td>
<td>3</td>
<td>Ethics of Violence/Non-Violence</td>
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<td>RELG 375</td>
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### Stream 3 - Sociology

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<td>SOCI 370</td>
<td>3</td>
<td>Sociology: Gender and Development</td>
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<td>SOCI 446</td>
<td>3</td>
<td>Colonialism and Society</td>
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<td>SOCI 519</td>
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<td>Gender and Globalization</td>
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<td>SOCI 520</td>
<td>3</td>
<td>Migration and Immigrant Groups</td>
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<tr>
<td>SOCI 550</td>
<td>3</td>
<td>Developing Societies</td>
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</table>
Stream 4: Environment and Agricultural Resources

Within development studies, the environment has long been recognized as a vital determinant of development. More recently, many scholars have changed their environmental focus to emphasize sustainability. The courses in this stream recognize both: some courses consider how the environment can be exploited to promote human well-being while others consider how the environment must be respected to render development sustainable. Together, they highlight the delicate balance that must be attained between humans and their environments to make possible sustainable livelihoods.

Stream 4 - Agricultural Economics

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Stream 4 - Anthropology

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<td>(3)</td>
<td>Nomadic Pastoralists</td>
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<td>ANTH 339</td>
<td>(3)</td>
<td>Ecological Anthropology</td>
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<td>ANTH 418</td>
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<td>ANTH 512</td>
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Stream 4 - Economics

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<td>ECON 326</td>
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Stream 4 - Geography

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<td>GEOG 403</td>
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<td>Geography of Development</td>
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<td>Geography of Underdevelopment: Current Problems</td>
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<td>(3)</td>
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Stream 4 - International Development Studies

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<td>INTD 499</td>
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Stream 4 - Management Core

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Stream 4 - Mining and Materials Engineering

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Stream 4 - Natural Resource Sciences

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<tr>
<td>NRSC 340</td>
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<td>Global Perspectives on Food</td>
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</table>
NRSC 540 (3) Socio-Cultural Issues in Water

Stream 4 - Nutrition
NUTR 501 (3) Nutrition in Developing Countries

Stream 4 - Urban Planning
URBP 506 (3) Environmental Policy and Planning
URBP 520 (3) Globalization: Planning and Change

3.11.30.6 Bachelor of Arts (B.A.) - Honours International Development Studies (57 credits)
Honours students must maintain a GPA of 3.30 in their program courses and, according to Faculty regulations, a minimum CGPA of 3.00 in general.

Course Selection Guidelines for the Overall Program
1. In their complete program (57 credits), students must take at least 12 credits in at least one discipline, but cannot take more than 18 credits in any one discipline.
2. At least 30 of the 57 credits must be at the 300 level or above; 9 credits of these must be at the 400 level or above. Students may complete fieldwork, or an honours thesis, or an honours thesis with fieldwork (INTD 490 or INTD 491 or INTD 492) as part of the 400-level requirements of their stream.
3. In the final year (U3), no program courses may be taken below the 300 level.

Required Courses (15 credits)
ECON 208 (3) Microeconomic Analysis and Applications
ECON 313 (3) Economic Development 1
ECON 314 (3) Economic Development 2
INTD 200 (3) Introduction to International Development
INTD 497 (3) Research Seminar on International Development

Complementary Courses (42 credits)

Introductory
6 credits from the following introductory courses (only one course from each discipline may be counted):
ANTH 202 (3) Comparative Cultures
ANTH 212 (3) Anthropology of Development
GEOG 210 (3) Global Places and Peoples
GEOG 216 (3) Geography of the World Economy
POLI 227 (3) Developing Areas/Introduction
SOCI 254 (3) Development and Underdevelopment

Method and Language
12 credits of Method and Language courses selected as follows:
3-6 credits from the following Method courses selected in consultation with the International Development Studies Adviser.
Note: Students taking 6 credits select either ECON 227D1/D2 or SOCI 350 and SOCI 461.
ANTH 344 (3) Quantitative Approaches to Anthropology
ECON 227D1 (3) Economic Statistics
ECON 227D2 (3) Economic Statistics
6-9 credits of Language courses.

Students are required to master a language appropriate to an area of the developing world in which they have a particular interest. Among the languages that are included are: Arabic, Chinese, French as a Second Language, Korean, Portuguese, Spanish, Swahili and Urdu. Other language options can be approved by the Adviser. Students who already have second language capability have the option to do: 6-9 credits of another language; or additional courses taught in that language.

Streams

24 credits from one of the four IDS streams:

Stream 1: Economic Development and Living Standards
Stream 2: States and Governance
Stream 3: Culture and Society
Stream 4: Environment and Agricultural Resources

Stream 1: Economic Development and Living Standards

Experience has shown that development requires economic growth and is shaped by the distribution of economic resources. At the same time, the globalized economy has created new opportunities and new challenges for sustained growth. Courses in this stream revolve around the factors contributing to sustained economic growth, the trade-offs associated with different ways of achieving it, and the distributional issues development inevitably raises. More generally, this stream is also concerned with understanding what “development” actually entails in different contexts.

Stream 1 - Agriculture

AGRI 411 (3) Global Issues on Development, Food and Agriculture

Stream 1 - Agricultural Economics

AGEC 430 (3) Agriculture, Food and Resource Policy
AGEC 442 (3) Economics of International Agricultural Development

Stream 1 - Anthropology

ANTH 227 (3) Medical Anthropology

Stream 1 - Economics

ECON 209 (3) Macroeconomic Analysis and Applications
ECON 223 (3) Political Economy of Trade Policy
ECON 314 (3) Economic Development 2
ECON 326 (3) Ecological Economics
ECON 336 (3) The Chinese Economy
ECON 411 (3) Economic Development: A World Area
ECON 416 (3) Topics in Economic Development 2

Stream 1 - Geography

GEOG 310 (3) Development and Livelihoods
GEOG 403 (3) Global Health and Environmental Change
GEOG 409 (3) Geographies of Developing Asia
GEOG 508 (3) Resources, People and Power

Stream 1 - History
HIST 348 (3) China: Science-Medicine-Technology
HIST 381 (3) Colonial Africa: Health/Disease
HIST 396 (3) Disease in Africa Since 1960

Stream 1 - International Development Studies
INTD 397 (3) Topics in International Development
INTD 490 (3) Development Field Research
INTD 491 (3) Honours Thesis
INTD 492 (6) Honours Thesis with Field Research
INTD 499 (3) Internship: International Development Studies
INTD 597 (3) Seminar in International Development

Stream 1 - Management Core
MGCR 360 (3) Social Context of Business
MGCR 382 (3) International Business

Stream 1 - Management Policy
MGPO 475 (3) Strategies for Developing Countries

Stream 1 - Mining and Materials Engineering
MIME 524 (3) Mineral Resources Economics

Stream 1 - Natural Resource Sciences
NRSC 340 (3) Global Perspectives on Food
NRSC 540 (3) Socio-Cultural Issues in Water

Stream 1 - Political Science
POLI 423 (3) Politics of Ethno-Nationalism
POLI 445 (3) International Political Economy: Monetary Relations

Stream 1 - Sociology
SOCI 307 (3) Sociology of Globalization
SOCI 309 (3) Health and Illness
SOCI 365 (3) Health and Development
SOCI 513 (3) Social Aspects HIV/AIDS in Africa

Stream 2: States and Governance
The courses in this stream focus on how political institutions shape developmental processes. Some courses analyze states and recognize how some promote development by providing diverse developmental goods while others impede development by preying on their peoples. Other courses focus on regimes and consider how political rights and participation, or their absences, affect developmental processes. Finally, several courses consider factors that make possible effective states and regimes.

**Stream 2 - Anthropology**

ANTH 342 (3) Gender, Inequality and the State  
ANTH 512 (3) Political Ecology

**Stream 2 - Economics**

ECON 223 (3) Political Economy of Trade Policy

**Stream 2 - International Development Studies**

INTD 397 (3) Topics in International Development  
INTD 490 (3) Development Field Research  
INTD 491 (3) Honours Thesis  
INTD 492 (6) Honours Thesis with Field Research  
INTD 499 (3) Internship: International Development Studies  
INTD 597 (3) Seminar in International Development

**Stream 2 - Islamic Studies**

ISLA 360 (3) Islam and Politics  
ISLA 383 (3) Central Questions in Islamic Law

**Stream 2 - Political Science**

POLI 319 (3) Politics of Latin America  
POLI 322 (3) Political Change in South Asia  
POLI 323 (3) Developing Areas/China and Japan  
POLI 324 (3) Developing Areas/Africa  
POLI 340 (3) Developing Areas/Middle East  
POLI 345 (3) International Organizations  
POLI 347 (3) Arab-Israel Conflict, Crisis, Peace  
POLI 349 (3) Foreign Policy: Asia  
POLI 369 (3) Politics of Southeast Asia  
POLI 423 (3) Politics of Ethno-Nationalism  
POLI 445 (3) International Political Economy: Monetary Relations  
POLI 450 (3) Peacebuilding  
POLI 473 (3) Democracy and the Market  
POLI 474 (3) Inequality and Development  
POLI 522 (3) Seminar: Developing Areas

**Stream 2 - Sociology**

SOCI 265 (3) War, States and Social Change
Stream 3: Culture and Society

The courses in this stream focus on how the social structures, history, and culture of populations affect developmental processes. Associations, class, gender, religion, race, and ethnicity, for example, all shape development in multiple and diverse ways. Moreover, present developmental processes oftentimes cannot be adequately understood without considering history. Culture, in turn, is increasingly recognized within development studies as both a determinant and a constitutive element of development. In exploring all three, the courses in this stream provide important insight into the complex and varied relationship between social context and development.

Stream 3 - Anthropology

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ANTH 209</td>
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<td>Anthropology of Religion</td>
</tr>
<tr>
<td>ANTH 301</td>
<td>3</td>
<td>Nomadic Pastoralists</td>
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<td>ANTH 318</td>
<td>3</td>
<td>Globalization and Religion</td>
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<td>3</td>
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</tr>
<tr>
<td>ANTH 327</td>
<td>3</td>
<td>Peoples of South Asia</td>
</tr>
<tr>
<td>ANTH 329</td>
<td>3</td>
<td>Modern Chinese Society and Change</td>
</tr>
<tr>
<td>ANTH 341</td>
<td>3</td>
<td>Women in Cross-cultural Perspective</td>
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<td>ANTH 342</td>
<td>3</td>
<td>Gender, Inequality and the State</td>
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<tr>
<td>ANTH 422</td>
<td>3</td>
<td>Contemporary Latin American Culture &amp; Society</td>
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<td>Chinese Diversity and Diaspora</td>
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Stream 3 - East Asian Studies

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<td>Introduction: East Asian Culture: China</td>
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<tr>
<td>EAST 213</td>
<td>3</td>
<td>Introduction: East Asian Culture: Korea</td>
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Stream 3 - History

Students may count either HIST 339 or POLI 347 toward Stream 3 but not both. See the Political Science course list for Stream 3.

<table>
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<tbody>
<tr>
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<td>FYS: Race in Latin America</td>
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<td>HIST 200</td>
<td>3</td>
<td>Introduction to African History</td>
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<td>HIST 201</td>
<td>3</td>
<td>Modern African History</td>
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<td>HIST 213</td>
<td>3</td>
<td>World History, 1300-2000</td>
</tr>
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<td>HIST 218</td>
<td>3</td>
<td>Modern East Asian History</td>
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<td>HIST 309</td>
<td>3</td>
<td>History of Latin America to 1825</td>
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<td>HIST 338</td>
<td>3</td>
<td>Twentieth-Century China</td>
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<td>HIST 360</td>
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<td>Latin America since 1825</td>
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<td>HIST 366</td>
<td>3</td>
<td>Themes in Latin American History 1</td>
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<td>HIST 382</td>
<td>3</td>
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<td>HIST 419</td>
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<td>HIST 448</td>
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<td>Women, Gender and Sexuality in the Middle East</td>
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<td>HIST 528</td>
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<td>Indian Ocean World Slave Trade</td>
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**Stream 3 - Integrated Studies in Education**

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<tr>
<td>EDER 461</td>
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**Stream 3 - International Development Studies**

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<td>INTD 397</td>
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<tr>
<td>INTD 490</td>
<td>(3)</td>
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<tr>
<td>INTD 499</td>
<td>(3)</td>
<td>Internship: International Development Studies</td>
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<tr>
<td>INTD 597</td>
<td>(3)</td>
<td>Seminar in International Development</td>
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**Stream 3 - Islamic Studies**

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<td>ISLA 210</td>
<td>(3)</td>
<td>Muslim Societies</td>
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<tr>
<td>ISLA 345</td>
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<td>Science and Civilization in Islam</td>
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<td>ISLA 355</td>
<td>(3)</td>
<td>Modern History of the Middle East</td>
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<td>ISLA 360</td>
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<td>Islam and Politics</td>
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<td>ISLA 365</td>
<td>(3)</td>
<td>Middle East Since the 1970's</td>
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<td>ISLA 383</td>
<td>(3)</td>
<td>Central Questions in Islamic Law</td>
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<td>ISLA 411</td>
<td>(3)</td>
<td>History: Middle-East 1918-1945</td>
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<td>ISLA 415</td>
<td>(3)</td>
<td>Modern Iran: Anthropological Approach</td>
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<tr>
<td>ISLA 421</td>
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<td>Islam in South Asia: 1757 to Present</td>
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**Stream 3 - Management, Organizational Behaviour**

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<tr>
<td>ORGB 380</td>
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<td>Cross Cultural Management</td>
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**Stream 3 - Political Science**

Students may count either HIST 339 or POLI 347 toward Stream 3 but not both. See the History course list for Stream 3.

<table>
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<tbody>
<tr>
<td>POLI 347</td>
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<td>Arab-Israel Conflict, Crisis, Peace</td>
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<td>POLI 423</td>
<td>(3)</td>
<td>Politics of Ethno-Nationalism</td>
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<td>POLI 435</td>
<td>(3)</td>
<td>Identity and Inequality</td>
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<td>POLI 442</td>
<td>(3)</td>
<td>International Relations of Ethnic Conflict</td>
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<td>POLI 450</td>
<td>(3)</td>
<td>Peacebuilding</td>
</tr>
<tr>
<td>POLI 474</td>
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<td>Inequality and Development</td>
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**Stream 3 - Religious Studies**

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<tr>
<td>RELG 370</td>
<td>(3)</td>
<td>Religion and Human Rights</td>
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<tr>
<td>RELG 371</td>
<td>(3)</td>
<td>Ethics of Violence/Non-Violence</td>
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</table>
Within development studies, the environment has long been recognized as a vital determinant of development. More recently, many scholars have changed their environmental focus to emphasize sustainability. The courses in this stream recognize both: some courses consider how the environment can be exploited to promote human well-being while others consider how the environment must be respected to render development sustainable. Together, they highlight the delicate balance that must be attained between humans and their environments to make possible sustainable livelihoods.

**Stream 4: Environment and Agricultural Resources**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
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<tr>
<td>AGEC 430</td>
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<tr>
<td>AGEC 442</td>
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<td>Economics of International Agricultural Development</td>
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**Stream 4 - Anthropology**

<table>
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<tr>
<th>Course Code</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ANTH 206</td>
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<td>Environment and Culture</td>
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<td>ANTH 301</td>
<td>3</td>
<td>Nomadic Pastoralists</td>
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<tr>
<td>ANTH 339</td>
<td>3</td>
<td>Ecological Anthropology</td>
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<tr>
<td>ANTH 418</td>
<td>3</td>
<td>Environment and Development</td>
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<td>ANTH 512</td>
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**Stream 4 - Economics**

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<tr>
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**Stream 4 - Geography**

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<tr>
<td>GEOG 302</td>
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<td>Environmental Management 1</td>
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<tr>
<td>GEOG 403</td>
<td>3</td>
<td>Global Health and Environmental Change</td>
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<tr>
<td>GEOG 408</td>
<td>3</td>
<td>Geography of Development</td>
</tr>
<tr>
<td>GEOG 410</td>
<td>3</td>
<td>Geography of Underdevelopment: Current Problems</td>
</tr>
<tr>
<td>GEOG 508</td>
<td>3</td>
<td>Resources, People and Power</td>
</tr>
<tr>
<td>GEOG 510</td>
<td>3</td>
<td>Humid Tropical Environments</td>
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**Stream 4 - International Development Studies**

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<tbody>
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<td>INTD 397</td>
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<td>Honours Thesis</td>
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</table>
INTD 492  (6)  Honours Thesis with Field Research
INTD 499  (3)  Internship: International Development Studies
INTD 597  (3)  Seminar in International Development

**Stream 4 - Management Core**

MGCR 360  (3)  Social Context of Business

**Stream 4 - Mining and Materials Engineering**

MIME 524  (3)  Mineral Resources Economics

**Stream 4 - Natural Resource Sciences**

NRSC 340  (3)  Global Perspectives on Food
NRSC 540  (3)  Socio-Cultural Issues in Water

**Stream 4 - Nutrition**

NUTR 501  (3)  Nutrition in Developing Countries

**Stream 4 - Urban Planning**

URBP 506  (3)  Environmental Policy and Planning
URBP 520  (3)  Globalization: Planning and Change

3.11.30.7 Bachelor of Arts (B.A.) - Joint Honours Component International Development Studies (36 credits)

Students wishing to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary Honours thesis (if applicable).

Joint Honours students are expected to maintain a program GPA of 3.30 and, according to Faculty regulations, a minimum CGPA of 3.00 in general.

**Course Selection Guidelines for the Overall Program**

1. At least 24 of the 36 credits must be at the 300 level or above. Nine credits must be at the 400 level or above.
2. In the final year (U3), no program courses may be taken below the 300 level.

**Required Courses (18 credits)**

ECON 208  (3)  Microeconomic Analysis and Applications
ECON 313  (3)  Economic Development 1
ECON 314  (3)  Economic Development 2
INTD 200  (3)  Introduction to International Development
INTD 491  (3)  Honours Thesis
INTD 497  (3)  Research Seminar on International Development

**Complementary Courses (18 credits)**

**Introductory**

6 credits from the following introductory courses (only one course from each discipline may be counted):

ANTH 202  (3)  Comparative Cultures
Streams

12 credits from one of the four IDS streams with at least three disciplines within the stream:

Stream 1: Economic Development and Living Standards
Stream 2: States and Governance
Stream 3: Culture and Society
Stream 4: Environment and Agricultural Resources

Stream 1: Economic Development and Living Standards

Experience has shown that development requires economic growth and is shaped by the distribution of economic resources. At the same time, the globalized economy has created new opportunities and new challenges for sustained growth. Courses in this stream revolve around the factors contributing to sustained economic growth, the trade-offs associated with different ways of achieving it, and the distributional issues development inevitably raises. More generally, this stream is also concerned with understanding what "development" actually entails in different contexts.

Stream 1 - Agriculture

AGRI 411 (3) Global Issues on Development, Food and Agriculture

Stream 1 - Agricultural Economics

AGEC 430 (3) Agriculture, Food and Resource Policy
AGEC 442 (3) Economics of International Agricultural Development

Stream 1 - Anthropology

ANTH 227 (3) Medical Anthropology

Stream 1 - Economics

ECON 209 (3) Macroeconomic Analysis and Applications
ECON 223 (3) Political Economy of Trade Policy
ECON 314 (3) Economic Development 2
ECON 326 (3) Ecological Economics
ECON 336 (3) The Chinese Economy
ECON 411 (3) Economic Development: A World Area
ECON 416 (3) Topics in Economic Development 2

Stream 1 - Geography

GEOG 310 (3) Development and Livelihoods
GEOG 403 (3) Global Health and Environmental Change
GEOG 409 (3) Geographies of Developing Asia
GEOG 508 (3) Resources, People and Power
Stream 1 - History

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<tr>
<td>HIST 348</td>
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<td>China: Science-Medicine-Technology</td>
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<td>HIST 381</td>
<td>3</td>
<td>Colonial Africa: Health/Disease</td>
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<td>HIST 396</td>
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Stream 1 - International Development Studies

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Stream 1 - Management Core

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<td>MGCR 382</td>
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Stream 1 - Management Policy

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Stream 1 - Mining and Materials Engineering

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Stream 1 - Natural Resource Sciences

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<td>Global Perspectives on Food</td>
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<td>NRSC 540</td>
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<td>Socio-Cultural Issues in Water</td>
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Stream 1 - Political Science

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<td>POLI 423</td>
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Stream 1 - Sociology

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Stream 2: States and Governance

The courses in this stream focus on how political institutions shape developmental processes. Some courses analyze states and recognize how some promote development by providing diverse developmental goods while others impede development by preying on their peoples. Other courses focus on regimes and consider how political rights and participation, or their absences, affect developmental processes. Finally, several courses consider factors that make possible effective states and regimes.
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ANTH 342 (3) Gender, Inequality and the State
ANTH 512 (3) Political Ecology

Stream 2 - Economics

ECON 223 (3) Political Economy of Trade Policy

Stream 2 - International Development Studies

INTD 397 (3) Topics in International Development
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INTD 597 (3) Seminar in International Development

Stream 2 - Islamic Studies

ISLA 360 (3) Islam and Politics
ISLA 383 (3) Central Questions in Islamic Law

Stream 2 - Political Science

POLI 319 (3) Politics of Latin America
POLI 322 (3) Political Change in South Asia
POLI 323 (3) Developing Areas/China and Japan
POLI 324 (3) Developing Areas/Africa
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POLI 445 (3) International Political Economy: Monetary Relations
POLI 450 (3) Peacebuilding
POLI 473 (3) Democracy and the Market
POLI 474 (3) Inequality and Development
POLI 522 (3) Seminar: Developing Areas

Stream 2 - Sociology

SOCI 265 (3) War, States and Social Change
SOCI 484 (3) Emerging Democratic States
SOCI 550 (3) Developing Societies
Stream 2 - Social Work

SWRK 400 (3) Policy and Practice for Refugees

Stream 3: Culture and Society

The courses in this stream focus on how the social structures, history, and culture of populations affect developmental processes. Associations, class, gender, religion, race, and ethnicity, for example, all shape development in multiple and diverse ways. Moreover, present developmental processes oftentimes cannot be adequately understood without considering history. Culture, in turn, is increasingly recognized within development studies as both a determinant and a constitutive element of development. In exploring all three, the courses in this stream provide important insight into the complex and varied relationship between social context and development.

Stream 3 - Anthropology

ANTH 209 (3) Anthropology of Religion
ANTH 301 (3) Nomadic Pastoralists
ANTH 318 (3) Globalization and Religion
ANTH 322 (3) Social Change in Modern Africa
ANTH 326 (3) Anthropology of Latin America
ANTH 327 (3) Peoples of South Asia
ANTH 329 (3) Modern Chinese Society and Change
ANTH 341 (3) Women in Cross-cultural Perspective
ANTH 342 (3) Gender, Inequality and the State
ANTH 422 (3) Contemporary Latin American Culture & Society
ANTH 500 (3) Chinese Diversity and Diaspora

Stream 3 - East Asian Studies

EAST 211 (3) Introduction: East Asian Culture: China
EAST 213 (3) Introduction: East Asian Culture: Korea

Stream 3 - History

Students may count either HIST 339 or POLI 347 toward Stream 3 but not both. See the Political Science course list for Stream 3.

HIST 197 (3) FYS: Race in Latin America
HIST 200 (3) Introduction to African History
HIST 201 (3) Modern African History
HIST 213 (3) World History, 1300-2000
HIST 218 (3) Modern East Asian History
HIST 309 (3) History of Latin America to 1825
HIST 338 (3) Twentieth-Century China
HIST 339 (3) Arab-Israeli Conflict
HIST 360 (3) Latin America since 1825
HIST 366 (3) Themes in Latin American History 1
HIST 382 (3) History of South Africa
HIST 419 (3) Central America
HIST 448 (3) Women, Gender and Sexuality in the Middle East
HIST 528 (3) Indian Ocean World Slave Trade
Stream 3 - Integrated Studies in Education
EDER 461 (3) Society and Change

Stream 3 - International Development Studies
INTD 397 (3) Topics in International Development
INTD 490 (3) Development Field Research
INTD 491 (3) Honours Thesis
INTD 492 (6) Honours Thesis with Field Research
INTD 499 (3) Internship: International Development Studies
INTD 597 (3) Seminar in International Development

Stream 3 - Islamic Studies
ISLA 200 (3) Islamic Civilization
ISLA 210 (3) Muslim Societies
ISLA 345 (3) Science and Civilization in Islam
ISLA 355 (3) Modern History of the Middle East
ISLA 360 (3) Islam and Politics
ISLA 365 (3) Middle East Since the 1970's
ISLA 383 (3) Central Questions in Islamic Law
ISLA 411 (3) History: Middle-East 1918-1945
ISLA 415 (3) Modern Iran: Anthropological Approach
ISLA 421 (3) Islam in South Asia: 1757 to Present

Stream 3 - Management, Organizational Behaviour
ORGB 380 (3) Cross Cultural Management

Stream 3 - Political Science
Students may count either HIST 339 or POLI 347 toward Stream 3 but not both. See the History course list for Stream 3.

POLI 347 (3) Arab-Israel Conflict, Crisis, Peace
POLI 423 (3) Politics of Ethno-Nationalism
POLI 435 (3) Identity and Inequality
POLI 442 (3) International Relations of Ethnic Conflict
POLI 450 (3) Peacebuilding
POLI 474 (3) Inequality and Development

Stream 3 - Religious Studies
RELG 370 (3) Religion and Human Rights
RELG 371 (3) Ethics of Violence/Non-Violence
RELG 375 (3) Religion and Society

Stream 3 - Sociology
<table>
<thead>
<tr>
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<th>Credits</th>
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<tr>
<td>SOCI 234</td>
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<td>Population and Society</td>
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<td>SOCI 370</td>
<td>(3)</td>
<td>Sociology: Gender and Development</td>
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<td>SOCI 446</td>
<td>(3)</td>
<td>Colonialism and Society</td>
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<td>SOCI 519</td>
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<td>Migration and Immigrant Groups</td>
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<td>SOCI 550</td>
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<tr>
<td>SOCI 555</td>
<td>(3)</td>
<td>Comparative Historical Sociology</td>
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</tbody>
</table>

**Stream 4: Environment and Agricultural Resources**

Within development studies, the environment has long been recognized as a vital determinant of development. More recently, many scholars have changed their environmental focus to emphasize sustainability. The courses in this stream recognize both: some courses consider how the environment can be exploited to promote human well-being while others consider how the environment must be respected to render development sustainable. Together, they highlight the delicate balance that must be attained between humans and their environments to make possible sustainable livelihoods.

**Stream 4 - Agricultural Economics**

<table>
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<tr>
<th>Course Code</th>
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<td>Agriculture, Food and Resource Policy</td>
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<td>AGEC 442</td>
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<td>Economics of International Agricultural Development</td>
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**Stream 4 - Anthropology**

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<td>ANTH 301</td>
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<td>Nomadic Pastoralists</td>
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<tr>
<td>ANTH 339</td>
<td>(3)</td>
<td>Ecological Anthropology</td>
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<tr>
<td>ANTH 418</td>
<td>(3)</td>
<td>Environment and Development</td>
</tr>
<tr>
<td>ANTH 512</td>
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<td>Political Ecology</td>
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**Stream 4 - Economics**

<table>
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**Stream 4 - Geography**

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<td>Environmental Management 1</td>
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<td>GEOG 403</td>
<td>(3)</td>
<td>Global Health and Environmental Change</td>
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<td>GEOG 408</td>
<td>(3)</td>
<td>Geography of Development</td>
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<td>GEOG 410</td>
<td>(3)</td>
<td>Geography of Underdevelopment: Current Problems</td>
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<td>GEOG 508</td>
<td>(3)</td>
<td>Resources, People and Power</td>
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<td>GEOG 510</td>
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<td>Humid Tropical Environments</td>
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**Stream 4 - International Development Studies**

<table>
<thead>
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<th>Course Code</th>
<th>Credits</th>
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<tr>
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<tr>
<td>INTD 490</td>
<td>(3)</td>
<td>Development Field Research</td>
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<tr>
<td>INTD 491</td>
<td>(3)</td>
<td>Honours Thesis</td>
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<td>INTD 492</td>
<td>(6)</td>
<td>Honours Thesis with Field Research</td>
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<tr>
<td>INTD 499</td>
<td>(3)</td>
<td>Internship: International Development Studies</td>
</tr>
<tr>
<td>INTD 597</td>
<td>(3)</td>
<td>Seminar in International Development</td>
</tr>
</tbody>
</table>
Stream 4 - Management Core
MGCR 360 (3) Social Context of Business

Stream 4 - Mining and Materials Engineering
MIME 524 (3) Mineral Resources Economics

Stream 4 - Natural Resource Sciences
NRSC 340 (3) Global Perspectives on Food
NRSC 540 (3) Socio-Cultural Issues in Water

Stream 4 - Nutrition
NUTR 501 (3) Nutrition in Developing Countries

Stream 4 - Urban Planning
URBP 506 (3) Environmental Policy and Planning
URBP 520 (3) Globalization: Planning and Change

3.11.31 Islamic Studies (ISLA)

3.11.31.1 Location
Morrice Hall, Room 319
3485 McTavish Street
Montreal, Quebec H3A 1Y1
Telephone: 514-398-6077
Fax: 514-398-6731
Email: info.islamics@mcmill.ca
Website: www.mcmill.ca/islamicstudies

3.11.31.2 About Islamic Studies
The Institute of Islamic Studies offers a minor in Islamic Studies by completing courses in history, literature, politics, philosophy, law, and languages (Arabic, Turkish, Persian, and Urdu) at the 100, 200, 300, 400, and 500 level.
To declare a minor in Islamic Studies, you must have been offered admission into a Bachelor's program at McGill.

3.11.31.3 Islamic Studies (ISLA) Faculty

Director
F. Jamil Ragep

Emeritus and Retired Professors
Sajida S. Alvi; B.A., M.A., Ph.D.(Punj.) (emeritus)
Issa J. Boullata; Ph.D.(Lond.) (retired)
Donald P. Little; B.A.(Vanderbilt), M.A.(Stan.), Ph.D.(Calif.) (emeritus)
Eric Ormsby; B.A.(Penn.), M.A.(Princ.), M.L.S.(Rutg.), Ph.D.(Princ.) (retired)
A. Uner Turgay; B.A.(Robert Coll., Istanbul), M.A., Ph.D.(Wisc.) (retired)
**3.11.31.4 Bachelor of Arts (B.A.) - Minor Concentration Islamic Studies (18 credits)**

This Minor concentration permits students to explore the development and diversity of Islam through courses that focus on Islamic history, religion and civilization in the premodern period (pre-19th century), as well as through courses that focus on the dynamics of modern and contemporary (19th through 21st centuries) Muslim societies and cultures.

### Required Courses (6 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
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<tr>
<td>ISLA 200</td>
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<td>Islamic Civilization</td>
</tr>
<tr>
<td>ISLA 210</td>
<td>3</td>
<td>Muslim Societies</td>
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</table>

### Complementary Courses (12 credits)

12 credits selected from:

<table>
<thead>
<tr>
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<th>Credits</th>
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<tbody>
<tr>
<td>ISLA 325</td>
<td>3</td>
<td>Introduction to Shī‘ī Islam</td>
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<tr>
<td>ISLA 345</td>
<td>3</td>
<td>Science and Civilization in Islam</td>
</tr>
<tr>
<td>ISLA 350</td>
<td>3</td>
<td>From Tribe to Dynasty</td>
</tr>
<tr>
<td>ISLA 355</td>
<td>3</td>
<td>Modern History of the Middle East</td>
</tr>
<tr>
<td>ISLA 360</td>
<td>3</td>
<td>Islam and Politics</td>
</tr>
<tr>
<td>ISLA 365</td>
<td>3</td>
<td>Middle East Since the 1970's</td>
</tr>
<tr>
<td>ISLA 380</td>
<td>3</td>
<td>Islamic Philosophy and Theology</td>
</tr>
<tr>
<td>ISLA 383</td>
<td>3</td>
<td>Central Questions in Islamic Law</td>
</tr>
<tr>
<td>ISLA 385</td>
<td>3</td>
<td>Poetics &amp; Politics in Arabic Literature</td>
</tr>
<tr>
<td>ISLA 388</td>
<td>3</td>
<td>Persian Literature</td>
</tr>
<tr>
<td>ISLA 392</td>
<td>3</td>
<td>Arabian Literature as World Literature</td>
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<td>ISLA 415</td>
<td>3</td>
<td>Modern Iran: Anthropological Approach</td>
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<tr>
<td>ISLA 420</td>
<td>3</td>
<td>Indo-Islamic Civilization: Medieval</td>
</tr>
<tr>
<td>ISLA 421</td>
<td>3</td>
<td>Islam in South Asia: 1757 to Present</td>
</tr>
</tbody>
</table>
### Italian Studies (ITAL)

#### 3.11.32.1 Location

688 Sherbrooke Street West, Room 425  
Montreal, Quebec H3A 3R1  
Telephone: 514-398-3953  
Fax: 514-398-1748  
Email: italian.studies@mcgill.ca  
Website: www.mcgill.ca/italian

#### 3.11.32.2 About Italian Studies

The Department has as its mission to maintain the traditions and study of the great classics as well as to provide a window on an increasingly complex and diverse contemporary Italian culture. It promotes the study of the Italian language through an excellent and rigorous language training program. It offers courses in Italian literature, both in Italian and in English, as well as in Italian film. The Department periodically invites scholars specializing in social and political aspects of Italian culture, enabling students to gain a broader and more critical understanding of various aspects of the Italian experience.

#### 3.11.32.3 Italian Studies (ITAL) Faculty

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair</td>
<td>Lucienne Kroha</td>
</tr>
<tr>
<td>Emeritus Professor</td>
<td>Pamela D. Stewart; B.A.(Montr.), M.A.(McG.), F.R.S.C.</td>
</tr>
</tbody>
</table>
| Associate Professors  | Eugenio Bolongaro; B.A., L.LB.(Br. Col.), Ph.D.(McG.)  
                        | Lucienne Kroha; B.A., M.A.(McG.), Ph.D.(Harv.) |
| Assistant Professor   | Matteo Soranzo; M.A., Ph.D.(Wisc.) |
| Lecturers             | Enrica Quaroni; B.A., Ph.D.(McG.)  
                        | Jen Wienstein; B.A., M.A., Ph.D.(McG.) (retired as of June 2011) |
| Associate Members     | Paula Clarke (History and Classical Studies)  
                        | Anthony Masi (Sociology)  
                        | Filippo Sabetti (Political Science) |
| Adjunct Professors    | Dario Brancato (C’dia)  
                        | Tobias F. Gittes (Liberal Arts College, C’dia)  
                        | Silvestra Mariniello (Histoire de l’art et d’Études cinématographiques, Montr.) |
Adjunct Professors

Rosanna Maule (C'dia)
Viva Paci (UQAM)

Advisers

Minor Concentrations in Language – TBA (please see departmental website)
Minor Concentrations, Major Concentrations, Honours, and Joint Honours – Prof. L. Kroha, 514-398-3100; Prof. M. Soranzo, 514-398-2833

3.11.32.4 Bachelor of Arts (B.A.) - Minor Concentration Italian Studies (18 credits)

This program may be expanded to the Major Concentration Italian Studies.

Complementary Courses (18 credits)

18 credits selected from three Italian course lists as follows:

0-12 credits from Group A – Basic Language Courses.

Students with advanced standing in the language must replace language courses with courses in Groups B and C.

6-18 credits from Group B - Courses Taught in Italian and Group C - Courses Taught in English.

Group A - Basic Language Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ITAL 205D1</td>
<td>Italian for Beginners'</td>
<td>3</td>
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<tr>
<td>ITAL 205D2</td>
<td>Italian for Beginners'</td>
<td>3</td>
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<td>ITAL 206</td>
<td>Beginners’ Italian Intensive</td>
<td>6</td>
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<tr>
<td>ITAL 210D1</td>
<td>Elementary Italian</td>
<td>3</td>
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<tr>
<td>ITAL 210D2</td>
<td>Elementary Italian</td>
<td>3</td>
</tr>
<tr>
<td>ITAL 215D1</td>
<td>Intermediate Italian</td>
<td>3</td>
</tr>
<tr>
<td>ITAL 215D2</td>
<td>Intermediate Italian</td>
<td>3</td>
</tr>
<tr>
<td>ITAL 216</td>
<td>Intermediate Italian Intensive</td>
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Group B - Courses Taught in Italian

* Note: Only one of ITAL 250 or ITAL 255 can count toward the program.

<table>
<thead>
<tr>
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<tr>
<td>ITAL 250*</td>
<td>Italian Literary Composition</td>
<td>3</td>
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<tr>
<td>ITAL 255*</td>
<td>Advanced Reading and Composition</td>
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<td>ITAL 260</td>
<td>Twentieth Century Texts</td>
<td>3</td>
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<tr>
<td>ITAL 270</td>
<td>Manzoni: Novel and Nationhood</td>
<td>3</td>
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<tr>
<td>ITAL 280</td>
<td>Masterpieces of Italian Literature 1</td>
<td>3</td>
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<td>ITAL 281</td>
<td>Masterpieces of Italian Literature 2</td>
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<td>ITAL 290</td>
<td>Commedia Dell’Arte</td>
<td>3</td>
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<tr>
<td>ITAL 295</td>
<td>Contemporary Italy</td>
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<tr>
<td>ITAL 307</td>
<td>Topics in Italian Culture</td>
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<td>ITAL 308</td>
<td>Business Italian 1</td>
<td>3</td>
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<tr>
<td>ITAL 327</td>
<td>A Literary Map of Italy</td>
<td>3</td>
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<tr>
<td>ITAL 331</td>
<td>Drama from Goldoni to Pirandello</td>
<td>3</td>
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<tr>
<td>ITAL 341</td>
<td>The Art of Essay Writing</td>
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<td>ITAL 356</td>
<td>Medieval Discourses on Love</td>
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<tr>
<td>ITAL 362</td>
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<td>Literature and Society 1945-1989</td>
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<td>Italian Poetry and Music</td>
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<td>ITAL 376</td>
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<td>Neorealism: Roots and Development</td>
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<td>ITAL 383</td>
<td>3</td>
<td>Women's Writing since 1880</td>
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<td>Modern Italian Literature</td>
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<td>3</td>
<td>Pirandello</td>
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<td>ITAL 415</td>
<td>3</td>
<td>Italian Poetry 20th Century</td>
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<td>ITAL 420</td>
<td>3</td>
<td>Leopardi and Italian Romanticism</td>
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<td>ITAL 435</td>
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<td>Ariosto's &quot;Orlando Furioso&quot;</td>
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<td>ITAL 436</td>
<td>3</td>
<td>Tasso's &quot;Gerusalemme Liberata&quot;</td>
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<td>ITAL 461</td>
<td>3</td>
<td>Dante: &quot;The Divine Comedy&quot;</td>
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<td>ITAL 530</td>
<td>3</td>
<td>17th-18th Century Culture</td>
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<td>ITAL 542</td>
<td>3</td>
<td>History of Italian Language</td>
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<td>ITAL 551</td>
<td>3</td>
<td>Boccaccio and the Italian Novella</td>
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<td>ITAL 560</td>
<td>3</td>
<td>Topics in 19th &amp; 20th Century Literature</td>
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<td>ITAL 562</td>
<td>3</td>
<td>Petrarch and Petrarchism</td>
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<td>ITAL 563</td>
<td>3</td>
<td>13th-16th Century Literature</td>
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**Group C - Courses Taught in English**

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<td>FYS: Italy's Literature in Context</td>
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<td>ITAL 355</td>
<td>3</td>
<td>Dante and the Middle Ages</td>
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<tr>
<td>ITAL 361</td>
<td>3</td>
<td>Italian Prose after 1945</td>
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<tr>
<td>ITAL 363</td>
<td>3</td>
<td>Gender, Literature and Society</td>
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<tr>
<td>ITAL 365</td>
<td>3</td>
<td>The Italian Renaissance</td>
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<tr>
<td>ITAL 375</td>
<td>3</td>
<td>Cinema and Society in Modern Italy</td>
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<td>ITAL 385</td>
<td>3</td>
<td>Italian Futurist Movement</td>
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<td>ITAL 395</td>
<td>3</td>
<td>Interdisciplinary Seminar</td>
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<td>ITAL 412</td>
<td>3</td>
<td>Pirandello and European Theatre</td>
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<tr>
<td>ITAL 416</td>
<td>3</td>
<td>The Twentieth Century</td>
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<td>ITAL 464</td>
<td>3</td>
<td>Machiavelli</td>
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<tr>
<td>ITAL 477</td>
<td>3</td>
<td>Italian Cinema and Video</td>
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</table>

**3.11.32.5 Bachelor of Arts (B.A.) - Major Concentration Italian Studies (36 credits)**

All students wishing to register for the Major Concentration Italian Studies are strongly urged to meet with a departmental adviser.

**Complementary Courses (36 credits)**

36 credits selected from the three Italian course lists as follows:

- 0-12 credits from Group A – Basic Language Courses
  - Students with no knowledge of the Italian language must take 12 credits in language.
  - Students with some knowledge of the language may take 6 credits only selected from ITAL 210D1/ITAL 210D2, ITAL 215D1/ITAL 215D2, or ITAL 216.
  - Students with competency in the language may substitute courses from Groups B and C for Group A - Basic Language courses.
ALL students with some background must consult with the Department for proper placement.

0-9 credits chosen from 200-level courses in Group B - Courses Taught in Italian.

12-36 credits chosen from courses at the 300 level and above, of which at least 3 credits must be at the 400 level or above, in Group B - Courses Taught in Italian.

0-6 credits from Group C - Courses Taught in English.

**Group A - Basic Language Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
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</thead>
<tbody>
<tr>
<td>ITAL 205D1</td>
<td>(3)</td>
<td>Italian for Beginners'</td>
</tr>
<tr>
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**Group B - Courses Taught in Italian**

* Note: Only one of ITAL 250 or ITAL 255 can count toward the program.

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<td>Ariosto's &quot;Orlando Furioso&quot;</td>
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ITAL 436 (3) Tasso’s “Gerusalemme Liberata”
ITAL 461 (3) Dante: “The Divine Comedy”
ITAL 530 (3) 17th-18th Century Culture
ITAL 542 (3) History of Italian Language
ITAL 551 (3) Boccaccio and the Italian Novella
ITAL 560 (3) Topics in 19th & 20th Century Literature
ITAL 562 (3) Petrarch and Petrarchism
ITAL 563 (3) 13th-16th Century Literature

**Group C - Courses Taught in English**

ITAL 199 (3) FYS: Italy’s Literature in Context
ITAL 355 (3) Dante and the Middle Ages
ITAL 361 (3) Italian Prose after 1945
ITAL 363 (3) Gender, Literature and Society
ITAL 365 (3) The Italian Renaissance
ITAL 375 (3) Cinema and Society in Modern Italy
ITAL 385 (3) Italian Futurist Movement
ITAL 395 (3) Interdisciplinary Seminar
ITAL 412 (3) Pirandello and European Theatre
ITAL 416 (3) The Twentieth Century
ITAL 464 (3) Machiavelli
ITAL 477 (3) Italian Cinema and Video

**3.11.32.6 Bachelor of Arts (B.A.) - Honours Italian Studies (54 credits)**

Honours students must maintain a GPA of 3.30 in their program courses and, according to Faculty regulations, a minimum CGPA of 3.00 in general. Admission to the Honours program in Italian requires Departmental approval. Students wishing to register should consult with the Department as early as possible. Qualified students may begin Honours in Italian Studies in the first year, instead of the second, at the discretion of the Department.

**Required Courses (6 credits)**

One of the two honours thesis courses below:

ITAL 471D1 (3) Honours Thesis
ITAL 471D2 (3) Honours Thesis
ITAL 472 (6) Honours Thesis (Intensive)

**Complementary Courses (48 credits)**

48 credits, 9 of which must be at the 400 level or above, selected from the four Italian course lists as follows:

0-12 credits from Group A – Basic Language Courses.
30-48 credits from Group B – Courses Taught in Italian.
0-9 credits combined from Group C – Courses Taught in English and Group D – Courses Offered in Other Departments.

Note: Students with advanced standing in the language must replace language courses with courses from groups B, C, and D.

**Group A - Basic Language Courses**

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ITAL 205D2 (3) Italian for Beginners’
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**Group B - Courses Taught in Italian**

* Note: Only one of ITAL 250 or ITAL 255 can count toward the program.

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### Group C - Courses Taught in English

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### Group D - Courses Offered in Other Departments

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<td>POLI 414</td>
<td>3</td>
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### 3.11.32.7 Bachelor of Arts (B.A.) - Joint Honours Component Italian Studies (36 credits)

Students who wish to study at the Honours level in two Arts disciplines may apply to combine Joint Honours program components from two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable).

Joint Honours students must maintain a GPA of 3.30 in their program courses and, according to Faculty regulations, a minimum CGPA of 3.00 in general.

Admission to Joint Honours requires departmental approval. Students wishing to register in the program should consult with the Department as early as possible. Students may register for Joint Honours in the first year, instead of the second year, if in the opinion of the departments they are found to be qualified.

#### Required Courses (6 credits)

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Complementary Courses (30 credits)

30 credits, 6 of which must be at the 400 level or above, selected from the four Italian course lists as follows:

0-12 credits from Group A – Basic Language Courses.

12-30 credits from Group B – Courses Taught in Italian.

0-18 credits combined from Group C – Courses Taught in English and Group D – Courses Offered in Other Departments.

Note: Students with advanced standing in the language must replace language courses with courses from groups B, C, and D.

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**Group D - Courses Offered in Other Departments**

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3.11.33 Jewish Studies (JWST)

3.11.33.1 Location

3438 McTavish Street, Room 202
Montreal, Quebec H3A 1X9
Telephone: 514-398-6543
Fax: 514-398-5158
Website: www.mcgill.ca/jewishstudies

3.11.33.2 About Jewish Studies

The Department of Jewish Studies, established in 1968, offers an interdisciplinary approach to the study of Judaica. It includes:

- a selection of courses that will enable students not taking a concentration in Jewish Studies to broaden their knowledge of Jewish history and culture;
- elementary, intermediate, and advanced courses in Jewish languages – Hebrew, Yiddish, and Aramaic. In the case of the first two, this includes attention to both spoken idiom and written texts;
- specialized courses in the various disciplines that comprise Jewish Studies for students who have specific academic interests;
- a minor concentration for students who wish to add competence in Jewish Studies to their major field of study;
- a comprehensive major concentration, and an honours program culminating in advanced seminars and tutorials for students contemplating careers in the various fields of Judaica. The Honours program in Jewish Studies will give students the necessary linguistic, textual, and bibliographical knowledge to enable them to pursue graduate work in Jewish Studies.

3.11.33.3 Jewish Studies (JWST) Faculty

Chair
Eric Caplan

Professors

David Aberbach; B.A. (Univ. Coll. Lond.), M.Litt., D.Phil.(Oxf.)
Gershon D. Hundert; B.A.(Col.), M.A.(Ohio St.), Ph.D.(Col.) (Leanor Segal Professor of Jewish Studies)
B. Barry Levy; B.A., M.A., B.R.E.(Yeshiva), Ph.D.(NYU)

Associate Professors

Eric Caplan; B.A.(McG.), M.A.(Tor.), Ph.D.(McG.)
Carlos Fraenkel; B.A., M.A., Ph.D.(Free Univ., Berlin)
Yael Halevi-Wise; B.A.(Hebrew), M.A.(G’town), Ph.D.(Princ.)
Lawrence Kaplan; B.A.(Yeshiva), M.A., Ph.D.(Harv.)

Lecturers

Liane Alitowski; B.Mus., M.Mus.(Ind.), D.M.A.(Stony Brook)
Lea Fima; B.Ed.(Beit Berl College), M.A.(McG.)
Esther Frank; B.A., M.A.(McG.)
Anna Gonshor; B.A., M.L.S., M.A.(McG.)
Karen Slouch; B.Ed., M.A.(McG.)

Adjunct Professors

Magdalena Opalski; M.A.(Warsaw), Ph.D.(Ott.)
Ruth Wisse; M.A.(Col.), Ph.D.(McG.)
**311.33.3 Program Advisers**

**Minor Concentration in Jewish Law**
Lawrence Kaplan, 514-398-5008

**Minor Concentration in Jewish Studies**
Eric Caplan, 514-398-6544

**Major Concentration in Jewish Studies**
Eric Caplan, 514-398-6544

**Honours in Jewish Studies**
Eric Caplan, 514-398-6544

**3.11.33.4 Bachelor of Arts (B.A.) - Minor Concentration Jewish Law (18 credits)**

The Minor Concentration Jewish Law is designed to provide students with a special interest in Law, and particularly students from the Faculty of Law who are now permitted a minor in the Faculty of Arts, a basic but comprehensive knowledge of the concepts and methods related to Jewish Law.

This Minor concentration may be expanded to the Major Concentration Jewish Studies.

**Complementary Courses (18 credits)**
18 credits selected as follows:

0 - 3 credits from:
- HIST 207 (3) Jewish History: 400 B.C.E. to 1000
- JWST 216 (3) Jewish Studies 2: 400 B.C.E. - 1000

15 - 18 credits from:
- JWST 201 (3) Jewish Law
- JWST 316 (3) Social and Ethical Issues Jewish Law 1
- JWST 374 (3) Talmud and Law 1: Bava Kamma
- JWST 375 (3) Talmud and Law 2: Bava Metzia
- JWST 474 (3) Maimonides' Mishneh Torah
- JWST 475 (3) The Responsa Literature
- JWST 576 (3) Jewish Family Law

**3.11.33.5 Bachelor of Arts (B.A.) - Minor Concentration Jewish Studies (18 credits)**

In order to permit students flexibility within their chosen area, all courses in the Jewish Studies Concentrations are placed into the category "Complementary Courses". There is no language requirement for this minor concentration.

This program may be expanded to the Major Concentration Jewish Studies.

**Complementary Courses (18 credits)**
18 credits in Jewish Studies of which 9 are normally taken at the 300 level or above.

Consultation with an adviser is strongly recommended.

**Areas of Jewish Studies**
At least 9 credits will normally be taken at an advanced level in a single area or theme (e.g., Biblical Studies, East European Studies, Jewish History, Jewish Thought, Literature (Hebrew, Yiddish), Modern Jewish Studies, and Rabbinic Studies).
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<td>JWST 217</td>
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**Jewish Thought**

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**Language and Literature - Hebrew**

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**Language and Literature - Yiddish**

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**Rabbinic Studies**

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<td>JWST 544</td>
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Other Department Courses - History

Many of the courses in Jewish Studies are related to other departments, e.g., History, Religious Studies. There are also related courses in other departments which students specializing in certain areas of Jewish Studies might be encouraged to include in their programs, e.g., Classical Greek, Arabic, theories of literature, etc.

The following History department courses may be used as Jewish Studies courses in the Department of Jewish Studies programs. These courses have been included in the areas of study course lists above.

HIST 194 (3) FYS: Jewish Concepts of Others
HIST 207 (3) Jewish History: 400 B.C.E. to 1000
HIST 219 (3) Jewish History: 1000 - 2000
HIST 307 (3) Jews in Poland
HIST 427 (3) The Hasidic Movement
HIST 477D1 (3) Seminar in Jewish History
HIST 477D2 (3) Seminar in Jewish History

3.11.33.6 Bachelor of Arts (B.A.) - Major Concentration Jewish Studies (36 credits)

In order to permit students flexibility within their chosen area, all courses in the Jewish Studies concentrations are placed into the category "Complementary Courses".

Complementary Courses (36 credits)

36 credits in Jewish Studies of which 24 are normally taken at the 300 level or above, selected as described below. Consultation with an adviser is strongly recommended.

Jewish History

6 credits (minimum) in the history of Jewish civilization to be chosen from:

HIST 194 (3) FYS: Jewish Concepts of Others
HIST 207 (3) Jewish History: 400 B.C.E. to 1000
HIST 219 (3) Jewish History: 1000 - 2000
JWST 211 (3) Jewish Studies 1: Biblical Period
JWST 216 (3) Jewish Studies 2: 400 B.C.E. - 1000
JWST 217 (3) Jewish Studies 3: 1000 - 2000

Jewish Language

6 credits reflecting an advanced level of competence in either Hebrew or Yiddish chosen from the following:

JWST 327 (3) A Book of the Bible
JWST 328 (3) A Book of the Bible
JWST 329 (3) A Book of the Bible
JWST 330 (3) A Book of the Bible
JWST 331 (3) Bible Interpretation/Medieval Ashkenaz
JWST 332 (3) Bible Interpretation/Sefardic Tradition
JWST 333 (3) The Hebrew Liturgy
JWST 340D1 (3) Advanced Hebrew
Advanced Hebrew (3) JWST 340D2
Studies in Hebrew Language and Literature (3) JWST 367
Studies in Hebrew Language and Literature (3) JWST 368
Studies in Hebrew Language and Literature (3) JWST 369
Studies in Hebrew Language and Literature (3) JWST 370

Or, any course at the 400 level except for JWST 404 and JWST 405.

Areas of Jewish Studies

24 credits in Jewish Studies of which at least 12 are devoted to a single area of study: Biblical Studies, East European Studies, Jewish History, Jewish Thought, Literature (Hebrew, Yiddish), Modern Jewish Studies, and Rabbinic Studies.

Students without the background necessary to complete the advanced language requirement may substitute up to 12 credits in language.

Note: Hebrew language courses are found listed under the heading "Language and Literature - Hebrew", and Yiddish language courses are found under the heading "Language and Literature - Yiddish" in the areas of study lists below.

Biblical Studies

JWST 211 (3) Jewish Studies 1: Biblical Period
JWST 310 (3) Believers, Heretics and Critics
JWST 324 (3) Biblical Interpretation - Antiquity
JWST 327 (3) A Book of the Bible
JWST 328 (3) A Book of the Bible
JWST 329 (3) A Book of the Bible
JWST 330 (3) A Book of the Bible
JWST 331 (3) Bible Interpretation/Medieval Ashkenaz
JWST 332 (3) Bible Interpretation/Sefardic Tradition
JWST 333 (3) The Hebrew Liturgy
JWST 428 (3) Jewish Interpretation of Bible
JWST 429 (3) Biblical Poetry
JWST 456 (3) Studies in the Hebrew Bible
JWST 457 (3) Studies in the Hebrew Bible
JWST 458 (3) Studies in the Hebrew Bible
JWST 459 (3) Studies in the Hebrew Bible
JWST 510 (3) Jewish Bible Interpretation 1
JWST 511 (3) Jewish Bible Interpretation 2
JWST 520 (3) Bible Interpretation in Antiquity
JWST 521 (3) Bible in Dead Sea Scrolls
JWST 523 (3) Ancient Bible Interpretation
JWST 532 (3) Narrative Midrash
JWST 533 (3) Halakhic Midrash
JWST 534 (3) Homiletic Midrash
JWST 535 (3) Exegetical Midrash
JWST 536 (3) Readings: Aramaic Bible Translation
JWST 537 (3) The Bible in the Talmud Bavli
JWST 538 (3) Early Rabbinic Parshanut 1
JWST 541 (3) Medieval Ashkenazi Parshanut
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JWST 487  (3)  Tutorial in Yiddish Literature
JWST 488  (3)  Tutorial in Yiddish Literature
JWST 498D1 (3)  Tutorial in Yiddish Literature
JWST 498D2 (3)  Tutorial in Yiddish Literature
JWST 585  (3)  Tutorial: Eastern European Studies 1
JWST 586  (3)  Tutorial: Eastern European Studies 2

Jewish History

HIST 207  (3)  Jewish History: 400 B.C.E. to 1000
HIST 219  (3)  Jewish History: 1000 - 2000
HIST 307  (3)  Jews in Poland
HIST 427  (3)  The Hasidic Movement
HIST 477D1 (3)  Seminar in Jewish History
HIST 477D2 (3)  Seminar in Jewish History
JWST 211  (3)  Jewish Studies 1: Biblical Period
JWST 216  (3)  Jewish Studies 2: 400 B.C.E. - 1000
JWST 217  (3)  Jewish Studies 3: 1000 - 2000
JWST 240  (3)  The Holocaust
JWST 305  (3)  American Jewish History / Colonial Era to WWI
JWST 306  (3)  The American Jewish Community
JWST 314  (3)  Denominations in North American Judaism
JWST 315  (3)  Modern Liberal Jewish Thought
JWST 356  (3)  Jewish Labour Movement/Eastern Europe
JWST 357  (3)  Jewish Labour Movement/North America
JWST 361  (3)  The Shtetl: 1500-1897
JWST 362  (3)  The Shtetl: 1897-1939
JWST 365  (3)  Modern Jewish Ideologies
JWST 366  (3)  History of Zionism
JWST 371D1 (3)  Jews and the Modern City
JWST 371D2 (3)  Jews and the Modern City

Jewish Thought

EDER 318  (3)  Teaching the Jewish Liturgy
HIST 207  (3)  Jewish History: 400 B.C.E. to 1000
HIST 219  (3)  Jewish History: 1000 - 2000
HIST 427  (3)  The Hasidic Movement
JWST 201  (3)  Jewish Law
JWST 216  (3)  Jewish Studies 2: 400 B.C.E. - 1000
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**Language and Literature - Hebrew**

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**Rabbinic Studies**

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### Course Descriptions

- **JWST 402** (3) Readings in Rabbinic Literature
- **JWST 474** (3) Maimonides' Mishneh Torah
- **JWST 532** (3) Narrative Midrash
- **JWST 533** (3) Halakhic Midrash
- **JWST 534** (3) Homiletic Midrash
- **JWST 535** (3) Exegetic Midrash
- **JWST 537** (3) The Bible in the Talmud Bavli
- **JWST 538** (3) Early Rabbinic Parshanut I
- **JWST 541** (3) Medieval Ashkenazi Parshanut
- **JWST 542** (3) Abraham Ibn Ezra as Parshan
- **JWST 543** (3) Maimonides as Parshan
- **JWST 544** (3) Nachmanides as Parshan
- **JWST 572** (3) Aggadah in Modern Scholarship
- **JWST 574** (3) Bible in Responsa Literature
- **JWST 576** (3) Jewish Family Law

### Other Department Courses - History

Many of the courses in Jewish Studies are related to other departments, e.g., History, Religious Studies. There are also related courses in other departments which students specializing in certain areas of Jewish Studies might be encouraged to include in their programs, e.g., Classical Greek, Arabic, theories of literature, etc.

The following History department courses may be used as Jewish Studies courses in the Department of Jewish Studies programs. These courses have been included in the areas of study course lists above.

- **HIST 207** (3) Jewish History: 400 B.C.E. to 1000
- **HIST 219** (3) Jewish History: 1000 - 2000
- **HIST 307** (3) Jews in Poland
- **HIST 427** (3) The Hasidic Movement
- **HIST 477D1** (3) Seminar in Jewish History
- **HIST 477D2** (3) Seminar in Jewish History

### 3.11.33.7 Bachelor of Arts (B.A.) - Honours Jewish Studies (60 credits)

Honours students must maintain a GPA of 3.00 in their program courses and, according to Faculty regulations, a minimum CGPA of 3.00 in general.

#### Required Courses (9 credits)

- **JWST 211** (3) Jewish Studies 1: Biblical Period
- **JWST 491** (3) Honours Thesis 1
- **JWST 492** (3) Honours Thesis 2

#### Complementary Courses (51 credits)

51 credits selected as follows:

**Jewish History**

6 credits of courses on Jewish history.

One of:

- **HIST 207** (3) Jewish History: 400 B.C.E. to 1000
Jewish Studies 2: 400 B.C.E. - 1000

One of:

HIST 219 (3) Jewish History: 1000 - 2000
JWST 217 (3) Jewish Studies 3: 1000 - 2000

Jewish Language

0-18 credits of a Jewish language. Each Honours student will complete at least one Jewish language at the advanced level of instruction. A student who can demonstrate competence in a Jewish language may be permitted to substitute other courses for all or part of the language requirement.

Hebrew language courses are found listed under the heading "Language and Literature - Hebrew," and Yiddish language courses are found under the heading "Language and Literature - Yiddish."

Areas of Jewish Studies

27-45 credits of courses chosen to reflect progress to the advanced level in two of the areas of study: Biblical Studies, Rabbinic Studies, Literature (Hebrew, Yiddish), Jewish Thought, Jewish History, Modern Jewish Studies, and East European Studies.

Hebrew literature courses are found listed under the heading "Language and Literature - Hebrew," and Yiddish literature courses are found under the heading "Language and Literature - Yiddish."

Students should select their courses in consultation with a program adviser.

Biblical Studies

JWST 211 (3) Jewish Studies 1: Biblical Period
JWST 310 (3) Believers, Heretics and Critics
JWST 324 (3) Biblical Interpretation - Antiquity
JWST 327 (3) A Book of the Bible
JWST 328 (3) A Book of the Bible
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JWST 330 (3) A Book of the Bible
JWST 331 (3) Bible Interpretation/Medieval Ashkenaz
JWST 332 (3) Bible Interpretation/Sefardic Tradition
JWST 333 (3) The Hebrew Liturgy
JWST 428 (3) Jewish Interpretation of Bible
JWST 429 (3) Biblical Poetry
JWST 456 (3) Studies in the Hebrew Bible
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JWST 459 (3) Studies in the Hebrew Bible
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JWST 511 (3) Jewish Bible Interpretation 2
JWST 520 (3) Bible Interpretation in Antiquity
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JWST 523 (3) Ancient Bible Interpretation
JWST 532 (3) Narrative Midrash
JWST 533 (3) Halakhic Midrash
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Survey of Hebrew Literature 2 (JWST 439)
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Introductory Yiddish (JWST 280D1)
Introductory Yiddish (JWST 280D2)
Studies in Modern Jewish Literature (JWST 351)
The Yiddish Canon (JWST 355)
The Shtetl: 1500-1897 (JWST 361)
The Shtetl: 1897-1939 (JWST 362)
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Intermediate Yiddish (JWST 380D2)
Modern Yiddish Literature (JWST 381)
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The Hasidic Movement (HIST 427)
Seminar in Jewish History (HIST 477D1)
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<td>SOCI 327</td>
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**Rabbinic Studies**

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<td>Judaism and the Occult</td>
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<tr>
<td>JWST 345</td>
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<td>Introduction to Rabbinic Literature</td>
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</table>
Other Department Courses - History

Many of the courses in Jewish Studies are related to other departments, e.g., History, Religious Studies. There are also related courses in other departments which students specializing in certain areas of Jewish Studies might be encouraged to include in their programs, e.g., Classical Greek, Arabic, theories of literature, etc.

The following History department courses may be used as Jewish Studies courses in the Department of Jewish Studies programs. These courses have been included in the areas of study course lists above.

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<td>Jews in Poland</td>
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<td>Seminar in Jewish History</td>
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<td>Seminar in Jewish History</td>
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3.11.33.8 Bachelor of Arts (B.A.) - Joint Honours Component Jewish Studies (36 credits)

Students who wish to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable).

Joint Honours students must maintain a GPA of 3.00 in their program courses and, according to Faculty regulations, a minimum CGPA of 3.00 in general.

Required Courses (9 credits)

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<tr>
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<td>JWST 492</td>
<td>Honours Thesis 2</td>
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Complementary Courses (27 credits)

27 credits selected as follows:

Jewish History

6 credits of courses on Jewish history.

One of:

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<tr>
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One of:

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<td>Jewish Studies 3: 1000 - 2000</td>
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Jewish Language

0-6 credits of a Jewish language. Each Joint Honours student will complete at least one Jewish language at the advanced level of instruction. A student who can demonstrate competence in a Jewish language may be permitted to substitute other courses for all or part of the language requirement.

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Areas of Jewish Studies

15-21 credits, planned with an adviser and normally chosen to reflect progress to the advanced level in one of the areas of study: Biblical Studies, East European Studies, Jewish History, Jewish Thought, Literature (Hebrew, Yiddish), Modern Jewish Studies, and Rabbinic Studies.

Biblical Studies

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<td>JWST 310</td>
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<td>A Book of the Bible</td>
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<td>Exegetical Midrash</td>
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**East European Studies**

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<td>3</td>
<td>Jewish Studies 3: 1000 - 2000</td>
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<td>JWST 240</td>
<td>3</td>
<td>The Holocaust</td>
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<td>Jewish Labour Movement/Eastern Europe</td>
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**Jewish History**

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<td>3</td>
<td>Modern Liberal Jewish Thought</td>
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<td>JWST 356</td>
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<td>Jewish Labour Movement/Eastern Europe</td>
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### Jewish Thought

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### Language and Literature - Hebrew

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**Language and Literature - Yiddish**

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**Rabbinic Studies**
HIST 207 (3) Jewish History: 400 B.C.E. to 1000
HIST 219 (3) Jewish History: 1000 - 2000
JWST 201 (3) Jewish Law
JWST 216 (3) Jewish Studies 2: 400 B.C.E. - 1000
JWST 217 (3) Jewish Studies 3: 1000 - 2000
JWST 316 (3) Social and Ethical Issues Jewish Law 1
JWST 319 (3) Judaism and the Occult
JWST 333 (3) The Hebrew Liturgy
JWST 345 (3) Introduction to Rabbinic Literature
JWST 358 (3) Topics in Jewish Philosophy 1
JWST 359 (3) Topics in Jewish Philosophy 2
JWST 374 (3) Talmud and Law 1: Bava Kamma
JWST 375 (3) Talmud and Law 2: Bava Metzia
JWST 402 (3) Readings in Rabbinic Literature
JWST 474 (3) Maimonides' Mishneh Torah
JWST 532 (3) Narrative Midrash
JWST 533 (3) Halakhic Midrash
JWST 534 (3) Homiletic Midrash
JWST 535 (3) Exegetic Midrash
JWST 537 (3) The Bible in the Talmud Bavli
JWST 538 (3) Early Rabbinic Parshanut 1
JWST 541 (3) Medieval Ashkenazi Parshanut
JWST 542 (3) Abraham Ibn Ezra as Parshan
JWST 543 (3) Maimonides as Parshan
JWST 544 (3) Nachmanides as Parshan
JWST 572 (3) Aggadah in Modern Scholarship
JWST 574 (3) Bible in Responsa Literature
JWST 576 (3) Jewish Family Law

Other Department Courses - History

Many of the courses in Jewish Studies are related to other departments, e.g., History, Religious Studies. There are also related courses in other departments which students specializing in certain areas of Jewish Studies might be encouraged to include in their programs, e.g., Classical Greek, Arabic, theories of literature, etc.

The following History department courses may be used as Jewish Studies courses in the Department of Jewish Studies programs. These courses have been included in the areas of study course lists above.

HIST 194 (3) FYS: Jewish Concepts of Others
HIST 207 (3) Jewish History: 400 B.C.E. to 1000
HIST 219 (3) Jewish History: 1000 - 2000
HIST 307 (3) Jews in Poland
HIST 427 (3) The Hasidic Movement
HIST 477D1 (3) Seminar in Jewish History
HIST 477D2 (3) Seminar in Jewish History
3.11.33.9 Jewish Studies (JWST) Related Programs

3.11.33.9.1 Jewish Teacher Training Program

Established in 1973 in the Faculty of Education in conjunction with the Department of Jewish Studies, this program prepares students to teach at the elementary and secondary school levels.

Students are encouraged to acquire a strong general background in Bible, Jewish liturgy, traditions, and history, prior to registering in the program. Students lacking the ability to teach in Hebrew should consider spending a term at an Israeli university.

Further information can be obtained by contacting the Director, Dr. Eric Caplan, at 514-398-6544; by consulting Faculty of Education > section 5.10.22: Bachelor of Education (B.Ed.) – Kindergarten and Elementary Jewish Studies (120 credits); and at www.mcgill.ca/edu-jttp.

3.11.34 Latin-American and Caribbean Studies (LACS)

3.11.34.1 Location

Institute for the Study of International Development
Peterson Hall, Room 126
3460 McTavish Street
Montreal, Quebec H3A 1X9

Telephone: 514-398-4804
Fax: 514-398-2786
Email: ids@mcgill.ca
Website: www.mcgill.ca/isid

Adviser: Lisa Stanischewski

3.11.34.2 About Latin-American and Caribbean Studies

Established in 1971, the interdisciplinary program in Latin-American and Caribbean Studies offers a comprehensive array of courses on the peoples, cultures, history, literature, politics, economy, and geography of Latin America and the Caribbean, providing students with a broad-based understanding of this geographic region, and with the language and research skills required for advanced scholarship. The program in Latin-American and Caribbean Studies encourages the free exchange of ideas and perspectives in order to foster an environment suitable for serious reflection and critical analysis.

Students in the program in Latin-American and Caribbean Studies are encouraged to consider the opportunities for foreign study and research made available by bilateral exchange agreements with leading universities in the Spanish and Portuguese-speaking world. These exchanges are open to all members of the McGill University community. Further information may be obtained from the Student Exchange and Study Abroad Office, Service Point, 3415 McTavish Street, Montreal, QC, H3A 1Y1.

An agreement of cooperation with the Center for Latin American Studies at Georgetown University (Washington, D.C.) permits Honours students in Latin-American and Caribbean Studies at McGill to count a portion of their undergraduate coursework toward the degree requirements for Georgetown's M.A. in Latin American Studies, thus permitting completion of the M.A. in one calendar year. See the Program Adviser for additional information.

3.11.34.3 Undergraduate Degree Programs

The program in Latin-American and Caribbean Studies offers an interdisciplinary Honours degree and an interdisciplinary Major concentration as part of the Multi-track B.A. in Arts. Given the constraints of the Multi-track B.A. and our belief that an interdisciplinary program of area studies must include within it the language(s) used by the peoples and cultures under examination, there is at present no interdisciplinary Minor concentration in Latin-American and Caribbean Studies.

3.11.34.4 Latin-American and Caribbean Studies (LACS) Faculty

Program Committee Chair

J. Jouve-Martin (Hispanic Studies)

Program Committee

O. Coomes (Geography)
A. Holmes (Hispanic Studies)
C. LeGrand (History and Classical Studies)
P. Oxhorn (Political Science)
D. Studnicki-Gizbert (History and Classical Studies)
Program Committee

I. Vaccaro (Anthropology)

3.11.34.5 Bachelor of Arts (B.A.) - Major Concentration Latin American Studies (36 credits)

Required Courses (18 credits)
* Note: Successful completion of intermediate-level Spanish (HISP 220D1/D2 or HISP 219 or equivalent) is a prerequisite for the required courses HISP 243 and HISP 244.

- HISP 243* (3) Survey of Spanish-American Literature 1
- HISP 244* (3) Survey of Spanish-American Literature 2
- HIST 309 (3) History of Latin America to 1825
- HIST 360 (3) Latin America since 1825
- LACS 497 (3) Research Seminar: Latin America and the Caribbean
- POLI 319 (3) Politics of Latin America

Complementary Courses (18 credits)
18 credits selected from the Complementary Course List in consultation with the Program Adviser with the following requirements:
1) Courses from at least two disciplines or departments must be included.
2) At least 6 of the 18 credits must be at the 300 level or above.
3) No more than 6 credits in Spanish or Portuguese language (HISP 202D1/D2, HISP 204D1/D2, HISP 210D1/D2, HISP 218, HISP 219, HISP 220D1/D2, HISP 222) shall count for the Major concentration.

Complementary Course List

Anthropology
- ANTH 212 (3) Anthropology of Development
- ANTH 307 (3) Andean Prehistory
- ANTH 319 (3) Inka Archaeology & Ethnohistory
- ANTH 326 (3) Anthropology of Latin America
- ANTH 422 (3) Contemporary Latin American Culture & Society
- ANTH 439 (3) Theories of Development

Economics
- ECON 313 (3) Economic Development 1
- ECON 314 (3) Economic Development 2

English
- ENGL 321 (3) Caribbean Fiction

Geography
* Note: GEOG 404 may only count toward the requirements for this program when the topic is related to Panama.
- GEOG 310 (3) Development and Livelihoods
- GEOG 404* (3) Environmental Management 2
- GEOG 408 (3) Geography of Development
- GEOG 410 (3) Geography of Underdevelopment: Current Problems
### Hispanic Studies

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HIST 464D2 (3)  Topics: Latin American History
HIST 480D1 (3)  Capitalism and Empire: European Domination
HIST 480D2 (3)  Capitalism and Empire: European Domination
HIST 580D1 (3)  European and Native-American Encounters
HIST 580D2 (3)  European and Native-American Encounters

Political Science

POLI 227 (3)  Developing Areas/Introduction
POLI 300D1 (3)  Developing Areas/Revolution
POLI 300D2 (3)  Developing Areas/Revolution
POLI 319 (3)  Politics of Latin America
POLI 471 (3)  Democracy in the Modern World
POLI 472 (3)  Developing Areas/Social Movements
POLI 473 (3)  Democracy and the Market

3.11.34.6 Bachelor of Arts (B.A.) - Honours Latin American and Caribbean Studies - Area (60 credits)

The Honours Latin American and Caribbean Studies - Area option is designed to meet the needs of students who plan to attend graduate or professional school upon completion of the B.A. Both the Area option and the Thematic option provide a comprehensive interdisciplinary understanding of Latin America and the Caribbean, upon which more specialized coursework and research may be based. The Area option, with its disciplinary clusters, is recommended for students who envision graduate study in a specific discipline, such as History or Political Science.

While the Faculty of Arts regulations require a minimum CGPA of 3.0 for Honours programs, in addition, students pursuing the Honours Latin-American and Caribbean Studies - Area option must normally maintain a B+ (3.30) average in all program courses. Students must also meet all additional Faculty of Arts requirements for graduation with Honours.

Required Courses (21 credits)

* Note: Successful completion of intermediate-level Spanish (HISP 220D1/D2 or HISP 219 or equivalent) is a prerequisite for the required courses HISP 243 and HISP 244.

HISP 243* (3)  Survey of Spanish-American Literature 1
HISP 244* (3)  Survey of Spanish-American Literature 2
HIST 309 (3)  History of Latin America to 1825
HIST 360 (3)  Latin America since 1825
LACS 497 (3)  Research Seminar: Latin America and the Caribbean
LACS 498 (3)  Honours Thesis
POLI 319 (3)  Politics of Latin America

Complementary Courses (39 credits)

39 credits selected from the Complementary Course List in consultation with the Program Adviser with the following requirements.

1) 12 credits must be taken in Spanish or Portuguese.
2) 27 additional credits on Latin America and the Caribbean (exclusive of language courses).
3) A minimum of 15 of these 27 credits must be taken in one of the following disciplinary clusters, which may also include up to 6 credits of theoretical and/or methodological courses of particular relevance to the student's research interests: Cluster 1 - Literature and Culture; Cluster 2 - Economics, History, and Political Science; Cluster 3 - Anthropology and Geography.

Complementary Course List

Hispanic Studies - Languages
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**Cluster 1: Literature and Culture - Other Departments**

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**Cluster 3: Anthropology and Geography**

* Note: GEOG 404 may only count toward the requirements for this program when the topic is related to Panama.

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<td>(3)</td>
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<td>ANTH 326</td>
<td>(3)</td>
<td>Anthropology of Latin America</td>
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<tr>
<td>ANTH 422</td>
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<td>Contemporary Latin American Culture &amp; Society</td>
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<td>Geography of Development</td>
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<td>GEOG 410</td>
<td>(3)</td>
<td>Geography of Underdevelopment: Current Problems</td>
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<td>GEOG 498</td>
<td>(3)</td>
<td>Humans in Tropical Environments</td>
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<td>Humid Tropical Environments</td>
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</table>

### 3.11.34.7 Bachelor of Arts (B.A.) - Honours Latin American and Caribbean Studies - Thematic (60 credits)

The Honours Latin-American and Caribbean Studies - Thematic option permits highly motivated students to combine the study of Latin America and the Caribbean with a theme or intellectual focus whose roots extend beyond the geographic confines of this area, and for which a high level of methodological and/or theoretical expertise is required.

Themes of study may include, but are not limited to: ethnography and ethnohistory; the age of European expansion; transnationalism; the concepts and practice of law and justice; nationalism and nation-building; ecology and the management of human and natural resources.

While the Faculty of Arts regulations require a minimum CGPA of 3.0 for Honours programs, in addition, students pursuing the Honours Latin-American and Caribbean Studies - Thematic option must normally maintain a B+ (3.30) average in all program courses. Students must also meet all additional Faculty of Arts requirements for graduation with Honours.

**Required Courses (21 credits)**

* Note: Successful completion of intermediate-level Spanish (HISP 220D1/D2 or HISP 219 or equivalent) is a prerequisite for the required courses HISP 243 and HISP 244.
HISP 243* (3)  
Survey of Spanish-American Literature 1

HISP 244* (3)  
Survey of Spanish-American Literature 2

HIST 309 (3)  
History of Latin America to 1825

HIST 360 (3)  
Latin America since 1825

LACS 497 (3)  
Research Seminar: Latin America and the Caribbean

LACS 498 (3)  
Honours Thesis

POLI 319 (3)  
Politics of Latin America

**Complementary Courses (39 credits)**

39 credits selected in consultation with the Program Adviser with the following requirements.

1) 12 credits must be taken in Spanish or Portuguese (see the courses under the heading "Hispanic Studies" in the Complementary Course List).

2) 12 credits on Latin America and the Caribbean (exclusive of language courses) selected from the Complementary Course List.

3) 15 credits from outside the Complementary Course List, within a coherent theme of specialization.

**Complementary Course List**

**Anthropology**

<table>
<thead>
<tr>
<th>Course</th>
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**Economics**

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**English**

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**Geography**

* Note: GEOG 404 may only count toward the requirements for this program when the topic is related to Panama.

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**Hispanic Studies**

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**History**

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3.11.35 Linguistics (LING)

3.11.35.1 Location

1085 Dr. Penfield Avenue
Montreal, Quebec H3A 1A7

Telephone: 514-398-4222
Website: www.mcgill.ca/linguistics

3.11.35.2 About Linguistics

Linguistics is the scientific study of human language. Topics include: the structure of the world’s languages at the level of sounds (phonetics and phonology), words (morphology), sentences (syntax), and meaning (semantics); how people learn languages (acquisition); how people use two languages (bilingualism); how language is processed and represented in the brain (psycho- and neurolinguistics); how languages change over time (historical linguistics); and how languages vary in relation to region and social identity (dialectology and sociolinguistics). In addition to preparing students for advanced academic work in linguistics and related disciplines (e.g., anthropology, cognitive neuroscience, computer science, philosophy, or psychology), courses in linguistics provide a useful background for many careers, for example, language teaching, translation, child psychology, speech-language pathology, communication, and speech technology.

The Linguistics department offers a minor concentration, a major concentration, an honours program, and a joint honours program with other departments in the Faculty of Arts.

3.11.35.3 New Students

Students who are registering with the Department for the first time must attend the Department orientation meeting before seeing an adviser (www.mcgill.ca/linguistics/undergraduate).

3.11.35.4 Requirements

Linguistics students must do at least two-thirds of their Linguistics courses at McGill. Honours students must also do their Honours thesis at McGill. Inquiries may be addressed to the departmental office or the advisers for undergraduate studies.

3.11.35.5 Linguistics (LING) Faculty

Chair
Bernhard Schwarz

Emeritus Professors
C. Douglas Ellis; B.A.(Camb.), B.A.(McG.), M.A.(Tor.), M.A.(Yale), Ph.D.(McG.)
Myrna Gopnik; M.A., Ph.D.(Penn.)
Michel Paradis; B.A.(Montr.), M.A., Ph.D.(McG.), Ph.D.(Montr.), F.R.S.C.
Glyne L. Piggott; B.A.(W.I.), M.A., Ph.D.(Tor.)

Professors
Yosef Grodzinsky; B.Sc.(Hebrew), Ph.D.(Brandeis) (Canada Research Chair)
Profs: Lisa de M. Travis; B.A.(Yale), Ph.D.(MIT)
Lydia White; M.A.(Camb.), Ph.D.(McG.) (James McGill Professor)

Asst Profes: Charles Boberg; B.A.(Alta.), Ph.D.(Penn.)
Brendan Gillon; B.A., M.A.(Mich.), M.A.(Tor.), Ph.D.(MIT)
Heather Goad; B.A.(Br. Col.), M.A., Ph.D.(USC)
Bernhard Schwarz; M.A.(Tübingen), Ph.D.(Mass.)

Asst Profes: Luis Alonso-Ovalle; B.A.(Oviedo), M.A., Ph.D.(Mass.)
Meghan Clayards; B.Sc.(Vic., BC), M.A., Ph.D.(Roch.)
Junko Shimoyama; B.A., M.A.(Ochanomizu), Ph.D.(Mass.)
Michael Wagner; M.A.(Humboldt), Ph.D.(MIT)

Bachelor of Arts (B.A.) – Minor Concentration Linguistics (18 credits)
Revision, August 2011. Start of revision.
This program may be expanded to the Major Concentration Linguistics.

Required Courses (9 credits)
LING 201 (3) Introduction to Linguistics
LING 330 (3) Phonetics
LING 371 (3) Syntax 1

Complementary Courses (9 credits)
9 credits in Linguistics (LING) selected as follows:
3 credits must be at the 400 or 500 level,
3 credits must be selected from the following list, and
3 credits can be chosen according to the student's interests.
Note: If a 400- or 500-level course is chosen from the following list, the remaining 6 credits can be chosen according to the student's interests.
LING 320 (3) Sociolinguistics 1
LING 325 (3) Canadian English
LING 350 (3) Linguistic Aspects of Bilingualism
LING 355 (3) Language Acquisition 1
LING 390 (3) Neuroscience of Language
LING 425 (3) Historical Linguistics
LING 450 (3) Laboratory Linguistics
LING 451 (3) Acquisition of Phonology
LING 455 (3) Second Language Syntax
LING 520 (3) Sociolinguistics 2
LING 521 (3) Dialectology
LING 530 (3) Acoustic Phonetics
LING 555 (3) Language Acquisition 2
Students who take LING 360 as a complementary course may also take PHIL 210 as a complementary but must choose a 400- or 500-level course from the list above.

**Required Courses (18 credits)**

- LING 201 (3) Introduction to Linguistics
- LING 330 (3) Phonetics
- LING 331 (3) Phonology 1
- LING 360 (3) Introduction to Semantics
- LING 371 (3) Syntax 1
- PHIL 210 (3) Introduction to Deductive Logic 1

**Complementary Courses (18 credits)**

18 credits in Linguistics (LING) selected as follows:

- 9 credits must be at the 400 or 500 level,
- 3 credits must be selected from the following list, and
- 6 credits can be chosen according to the student's interests.

Note: If a 400- or 500-level course is chosen from the following list, it may be used toward the 9 credits of 400- or 500-level courses; the remaining 9 credits can then be chosen according to the student's interests.

- LING 320 (3) Sociolinguistics 1
- LING 325 (3) Canadian English
- LING 350 (3) Linguistic Aspects of Bilingualism
- LING 355 (3) Language Acquisition 1
- LING 390 (3) Neuroscience of Language
- LING 425 (3) Historical Linguistics
- LING 450 (3) Laboratory Linguistics
- LING 451 (3) Acquisition of Phonology
- LING 455 (3) Second Language Syntax
- LING 520 (3) Sociolinguistics 2
- LING 521 (3) Dialectology
- LING 530 (3) Acoustic Phonetics
- LING 555 (3) Language Acquisition 2
- LING 590 (3) Language Acquisition and Breakdown
Honours students must maintain a GPA of 3.30 (B+ average) in their program courses and a minimum grade of B+ must be obtained in three out of four of the following courses: LING 330, LING 331, LING 360, LING 371, as well as in the Honours Thesis, LING 480D1/D2. According to Faculty of Arts regulations, Honours students must also maintain a minimum CGPA of 3.00 in general.

The requirement for First Class Honours is a CGPA of 3.50 and a minimum grade of A- in the Honours Thesis. Inquiries may be addressed to the departmental office or to the Adviser for Undergraduate Studies.

Required Courses (24 credits)
LING 201 (3) Introduction to Linguistics
LING 330 (3) Phonetics
LING 331 (3) Phonology I
LING 360 (3) Introduction to Semantics
LING 371 (3) Syntax I
LING 480D1 (3) Honours Thesis
LING 480D2 (3) Honours Thesis
PHIL 210 (3) Introduction to Deductive Logic 1

Complementary Courses (36 credits)
36 credits with 24 credits in Linguistics and 12 credits in related fields.
24 linguistics (LING) credits are selected as follows:
15 linguistics credits must be at the 400 or 500 level,
3 of which are selected from the following list, and
9 other credits in linguistics, usually at the 200 or 300 level.
LING 425 (3) Historical Linguistics
LING 450 (3) Laboratory Linguistics
LING 451 (3) Acquisition of Phonology
LING 455 (3) Second Language Syntax
LING 520 (3) Sociolinguistics 2
LING 521 (3) Dialectology
LING 530 (3) Acoustic Phonetics
LING 555 (3) Language Acquisition 2
LING 590 (3) Language Acquisition and Breakdown

Other Fields
12 credits in related fields selected from the following list.

Computer Science
COMP 202 (3) Introduction to Computing 1
COMP 203 (3) Introduction to Computing 2

French Language and Literature
FREN 231 (3) Linguistique française
FREN 336 (3) La langue française
FREN 434 (3) Sociolinguistique du français

Language
Any course in language (other than the student’s native language) - literature courses are not acceptable.

**Mathematics**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MATH 240</td>
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</tr>
<tr>
<td>MATH 328</td>
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</table>

Discrete Structures 1

Computability and Mathematical Linguistics

**Philosophy**

<table>
<thead>
<tr>
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<tbody>
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<tr>
<td>PHIL 306</td>
<td>(3)</td>
</tr>
<tr>
<td>PHIL 415</td>
<td>(3)</td>
</tr>
<tr>
<td>PHIL 515</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Chomsky

Philosophy of Mind

Philosophy of Language

Seminar: Philosophy of Language

**Psychology**

<table>
<thead>
<tr>
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<th>Credits</th>
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<tbody>
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<td>PSYC 311</td>
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<td>PSYC 316</td>
<td>(3)</td>
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<tr>
<td>PSYC 340</td>
<td>(3)</td>
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<tr>
<td>PSYC 341</td>
<td>(3)</td>
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<td>PSYC 343</td>
<td>(3)</td>
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<td>PSYC 530</td>
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<tr>
<td>PSYC 532</td>
<td>(3)</td>
</tr>
<tr>
<td>PSYC 561</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Human Cognition and the Brain

Psychology of Deafness

Psychology of Language

The Psychology of Bilingualism

Language Learning in Children

Applied Topics in Deafness

Cognitive Science

Methods: Developmental Psycholinguistics

**Statistics**

Any course in statistics (from any department).

Revision, August 2011. End of revision.

### 3.11.35.9 Bachelor of Arts (B.A.) – Joint Honours Component Linguistics (36 credits)

Revision, August 2011. Start of revision.

Students who wish to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable). Joint Honours students must maintain a GPA of 3.30 (B+ average) in their program courses and a minimum grade of B+ must be obtained in three out of four of the following courses: LING 330, LING 331, LING 360, LING 371, as well as in the Joint Honours Thesis, LING 481D1/D2. According to Faculty of Arts regulations, Joint Honours students must also maintain a minimum CGPA of 3.00 in general.

The requirement for First Class Honours is a CGPA of 3.50 and a minimum grade of A- in the Joint Honours Thesis. Inquiries may be addressed to the departmental office or to the Adviser for Undergraduate Studies.

**Required Courses (21 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LING 201</td>
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</tr>
<tr>
<td>LING 330</td>
<td>(3)</td>
</tr>
<tr>
<td>LING 331</td>
<td>(3)</td>
</tr>
<tr>
<td>LING 360</td>
<td>(3)</td>
</tr>
<tr>
<td>LING 371</td>
<td>(3)</td>
</tr>
<tr>
<td>LING 481D1</td>
<td>(1.5)</td>
</tr>
<tr>
<td>LING 481D2</td>
<td>(1.5)</td>
</tr>
<tr>
<td>PHIL 210</td>
<td>(3)</td>
</tr>
</tbody>
</table>

Introduction to Linguistics

Phonetics

Phonology 1

Introduction to Semantics

Syntax 1

Joint Honours Thesis

Joint Honours Thesis

Introduction to Deductive Logic 1
Complementary Courses (15 credits)

15 credits in Linguistics (LING) selected as follows:

9 credits must be at the 400 or 500 level, 3 of which must be selected from the following list, and

6 other credits in Linguistics, usually at the 200 or 300 level.

LING 425 (3) Historical Linguistics
LING 450 (3) Laboratory Linguistics
LING 451 (3) Acquisition of Phonology
LING 455 (3) Second Language Syntax
LING 520 (3) Sociolinguistics 2
LING 521 (3) Dialectology
LING 530 (3) Acoustic Phonetics
LING 555 (3) Language Acquisition 2
LING 590 (3) Language Acquisition and Breakdown

Revision, August 2011. End of revision.

3.11.35.10 Linguisitics (LING) Related Programs

3.11.35.10.1 Minor in Cognitive Science

Students following major or honours programs in Linguistics with an interest in cognition may want to consider the Minor in Cognitive Science. For more information, see Faculty of Science > Cognitive Science.

3.11.36 Mathematics and Statistics (MATH)

3.11.36.1 Location

Burnside Hall, Room 1005
805 Sherbrooke Street West
Montreal, Quebec H3A 2K6

Telephone: 514-398-3800
Website: www.math.mcgill.ca

3.11.36.2 About Mathematics and Statistics

The Department of Mathematics and Statistics offers programs in both Arts and Science. For a list of teaching staff and an outline of the nature of the discipline, refer to Faculty of Science > Mathematics and Statistics.

A Desautels Faculty of Management B.Com. degree with a Major in Mathematics and a Schulich School of Music B.Mus. degree with Honours in Theory with Mathematics option are also available.

Students entering a Mathematics program are normally expected to have completed MATH 133, MATH 139 or MATH 140, MATH 141, or their equivalents. Otherwise they will be required to make up any deficiencies in these courses over and above the program credits.

The programs specifically for Arts students are described in this section. The following programs, which are fully described in the Faculty of Science section, may be taken by students in either Arts or Science:

- Honours in Mathematics
- Honours in Applied Mathematics
- Honours in Probability and Statistics
- Joint Honours in Mathematics and Computer Science

Students entering one of the Minor or Major concentrations listed below who have successfully completed a course equivalent to MATH 222 (Calculus 3) prior to coming to McGill are given exemption from taking MATH 222, but must replace it with a Complementary Mathematics course in the program of at least 3 credits.
Bachelor of Arts (B.A.) - Minor Concentration Mathematics (18 credits)

The Minor Concentration Mathematics is offered in two versions: an expandable version, for students who wish to leave open the option of expanding the program into a Major Concentration Mathematics, and a non-expandable version for students who know on entry into the Minor that they do not wish to expand it into a major concentration.

The Minor Concentration Mathematics may be taken in conjunction with a major concentration in some other discipline under option A of the Multi-track System. Students planning on taking the Major Concentration Mathematics and the Minor Concentration Mathematics as part of Multi-track option C should select the Supplementary Minor Concentration in Mathematics in place of this Minor concentration.

Under option C, it is not possible to combine the Minor Concentration Mathematics and the Minor Concentration Statistics. Students wishing to do this should instead take the Major Concentration Mathematics under option B (two major concentrations) and select a large number of statistics complementaries.

For more information about the Multi-track System options please refer to the Faculty of Arts regulations under "Faculty Degree Requirements", "About Program Requirements", and "Departmental Programs".

No overlap is permitted with other programs.

Program Prerequisites

Students who have not completed the program prerequisite courses listed below or their equivalents will be required to make up any deficiencies in these courses over and above the 18 credits required for the program.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
</tbody>
</table>

Expandable Version: Required Courses (12 credits)

* Note: Credit cannot be received for both MATH 236 and MATH 223 (listed as a required course in the non-expandable version of this Minor concentration).

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 235</td>
<td>3</td>
<td>Algebra 1</td>
</tr>
<tr>
<td>MATH 236*</td>
<td>3</td>
<td>Algebra 2</td>
</tr>
<tr>
<td>MATH 315</td>
<td>3</td>
<td>Ordinary Differential Equations</td>
</tr>
</tbody>
</table>

Expandable Version: Complementary Courses (6 credits)

Students selecting the expandable version of this program complete six complementary courses from the Complementary Course List.

It is strongly recommended that students take MATH 323 as a complementary course.

Non-Expandable Version: Required Courses (9 credits)

* Note: Credit cannot be received for both MATH 223 and MATH 236 (listed as a required course in the expandable version of this Minor concentration).

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 223*</td>
<td>3</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 315</td>
<td>3</td>
<td>Ordinary Differential Equations</td>
</tr>
</tbody>
</table>

Non-Expandable Version: Complementary Courses (9 credits)

Students selecting the non-expandable version of this program complete nine complementary courses from the Complementary Course List.

It is strongly recommended that students take MATH 323 as a complementary course.

Complementary Course List

* Note: Either MATH 249 or MATH 316 may be taken but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 249*</td>
<td>3</td>
<td>Honours Complex Variables</td>
</tr>
<tr>
<td>MATH 314</td>
<td>3</td>
<td>Advanced Calculus</td>
</tr>
<tr>
<td>MATH 316*</td>
<td>3</td>
<td>Complex Variables</td>
</tr>
<tr>
<td>MATH 317</td>
<td>3</td>
<td>Numerical Analysis</td>
</tr>
</tbody>
</table>
3.11.36.4 Bachelor of Arts (B.A.) - Supplementary Minor Concentration in Mathematics (18 credits)

This Minor concentration is open only to students registered in the Major Concentration Mathematics. Taken together, these two concentrations constitute a program equivalent to the Major in Mathematics offered by the Faculty of Science.

No course overlap between the Major Concentration Mathematics and the Supplementary Minor Concentration in Mathematics is permitted.

Note that according to the Faculty of Arts Multi-track System degree requirements, option C, students registered in the Supplementary Minor Concentration in Mathematics must also complete another minor concentration in a discipline other than Mathematics.

For more information about the Multi-track System options please refer to the Faculty of Arts regulations under "Faculty Degree Requirements", "About Program Requirements", and "Departmental Programs".

Required Course (3 credits)

* Note: If Math 315 has already been taken as part of the Major Concentration Mathematics, an additional 3-credit complementary course must be taken to replace it.

MATH 315* (3) Ordinary Differential Equations

Complementary Courses (15 credits)

15 credits selected as follows:

3 credits from:

* Note: If either of MATH 249 or MATH 316 has been taken as part of the Major Concentration Mathematics, another 3-credit complementary course must be taken.

MATH 249* (3) Honours Complex Variables
MATH 316* (3) Complex Variables

12 credits from:

MATH 204 (3) Principles of Statistics 2
MATH 317 (3) Numerical Analysis
MATH 318 (3) Mathematical Logic
MATH 319 (3) Introduction to Partial Differential Equations
MATH 320 (3) Differential Geometry
MATH 324 (3) Statistics
MATH 326  (3) Nonlinear Dynamics and Chaos
MATH 327  (3) Matrix Numerical Analysis
MATH 329  (3) Theory of Interest
MATH 335  (3) Computational Algebra
MATH 338  (3) History and Philosophy of Mathematics
MATH 339  (3) Foundations of Mathematics
MATH 340  (3) Discrete Structures 2
MATH 346  (3) Number Theory
MATH 348  (3) Topics in Geometry
MATH 352  (1) Problem Seminar
MATH 407  (3) Dynamic Programming
MATH 410  (3) Majors Project
MATH 417  (3) Mathematical Programming
MATH 423  (3) Regression and Analysis of Variance
MATH 430  (3) Mathematical Finance
MATH 447  (3) Introduction to Stochastic Processes
MATH 523  (4) Generalized Linear Models
MATH 524  (4) Nonparametric Statistics
MATH 525  (4) Sampling Theory and Applications

3.11.36.5 Bachelor of Arts (B.A.) - Minor Concentration Statistics (18 credits)

The Minor Concentration Statistics is offered only in a non-expandable version, that is, one that cannot be expanded into the Major Concentration Mathematics. The Minor Concentration Statistics may be taken in conjunction with a major concentration in some other discipline under option A of the Multi-track System, or together with the Major Concentration Mathematics and a minor concentration (which must be in some other discipline than Mathematics) under option C.

Under option C, it is not possible to combine the Minor Concentration Statistics and the Minor Concentration Mathematics. Students wishing to do this should instead take the Major Concentration Mathematics under option B (two major concentrations) and select a large number of statistics complementaries.

For more information about the Multi-track System options please refer to the Faculty of Arts regulations under "Faculty Degree Requirements", "About Program Requirements", and "Departmental Programs".

No overlap is permitted with other programs.

Program Prerequisites

Students who have not completed the program prerequisite courses listed below or their equivalents will be required to make up any deficiencies in these courses over and above the 18 credits required for the program.

MATH 133  (3) Linear Algebra and Geometry
MATH 140  (3) Calculus 1
MATH 141  (4) Calculus 2

Required Courses (15 credits)

* Note: If the Minor Concentration Statistics is combined with the Major Concentration Mathematics, the required courses MATH 222, MATH 223 and MATH 323 must be replaced by courses selected from the Complementary Courses. Credit cannot be received for both MATH 223 and MATH 236 (listed as a required course in the Major Concentration Mathematics).

MATH 222*  (3) Calculus 3
MATH 223*  (3) Linear Algebra
MATH 323*  (3) Probability
MATH 324  (3) Statistics
Regression and Analysis of Variance (3)  

Complementary Courses (3 credits)  
3 credits from:  
COMP 202 (3) Introduction to Computing 1  
MATH 204 (3) Principles of Statistics 2  
MATH 317 (3) Numerical Analysis  
MATH 447 (3) Introduction to Stochastic Processes  
MATH 523 (4) Generalized Linear Models  
MATH 524 (4) Nonparametric Statistics  
MATH 525 (4) Sampling Theory and Applications  

3.11.36.6 Bachelor of Arts (B.A.) - Major Concentration Mathematics (36 credits)  
Students who have done well in MATH 242 and MATH 235 at the end of their first term should consider, in consultation with their adviser and the instructors of the courses involved, the possibility of entering into an Honours program in Mathematics, in Applied Mathematics, in Probability and Statistics, or a Joint Honours program in Mathematics and another discipline.  

Program Prerequisites  
Students who have not completed the program prerequisite courses listed below or their equivalents will be required to make up any deficiencies in these courses over and above the 36 credits required for the program.  
MATH 133 (3) Linear Algebra and Geometry  
MATH 140 (3) Calculus 1  
MATH 141 (4) Calculus 2  

Guidelines for Course Selection  
Where appropriate, Honours-level courses may be substituted for their Majors-level counterparts. Students planning to undertake graduate studies in mathematics are urged to make such substitutions.  
Students interested in computer science should consider the courses MATH 317, MATH 318, MATH 327, MATH 328, MATH 340, MATH 407, MATH 417 and take a Minor Concentration Computer Science.  
Students interested in probability and statistics should consider either taking the Minor Concentration Statistics under option C, or else including some or all of the courses MATH 423, MATH 447, MATH 523, MATH 524, and MATH 525.  
Students interested in applied mathematics should consider the courses MATH 317, MATH 319, MATH 324, MATH 326, MATH 327, MATH 407 and MATH 417.  
Students interested in careers in business, industry or government should consider the courses MATH 317, MATH 319, MATH 327, MATH 407, MATH 417, MATH 423, MATH 447, MATH 523, and MATH 525.  

Required Courses (21 credits)  
MATH 222 (3) Calculus 3  
MATH 235 (3) Algebra 1  
MATH 236 (3) Algebra 2  
MATH 242 (3) Analysis 1  
MATH 243 (3) Analysis 2  
MATH 314 (3) Advanced Calculus  
MATH 323 (3) Probability  

Complementary Courses (15 credits)  
15 credits selected as follows:
At least 9 credits from:

* Note: Either MATH 249 or MATH 316 may be taken but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>MATH 249*</td>
<td>3</td>
<td>Honours Complex Variables</td>
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<tr>
<td>MATH 315</td>
<td>3</td>
<td>Ordinary Differential Equations</td>
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<tr>
<td>MATH 316*</td>
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<td>Complex Variables</td>
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<td>MATH 317</td>
<td>3</td>
<td>Numerical Analysis</td>
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<tr>
<td>MATH 324</td>
<td>3</td>
<td>Statistics</td>
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<tr>
<td>MATH 340</td>
<td>3</td>
<td>Discrete Structures 2</td>
</tr>
<tr>
<td>MATH 423</td>
<td>3</td>
<td>Regression and Analysis of Variance</td>
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Remaining credits from:

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<tr>
<td>MATH 204</td>
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<td>Principles of Statistics 2</td>
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<tr>
<td>MATH 318</td>
<td>3</td>
<td>Mathematical Logic</td>
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<tr>
<td>MATH 319</td>
<td>3</td>
<td>Introduction to Partial Differential Equations</td>
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<tr>
<td>MATH 320</td>
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<td>Nonlinear Dynamics and Chaos</td>
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<td>MATH 327</td>
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<td>Matrix Numerical Analysis</td>
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<td>MATH 328</td>
<td>3</td>
<td>Computability and Mathematical Linguistics</td>
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<td>MATH 339</td>
<td>3</td>
<td>Foundations of Mathematics</td>
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<td>Topics in Geometry</td>
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<td>MATH 352</td>
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<td>MATH 407</td>
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<td>Majors Project</td>
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<td>MATH 417</td>
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<td>Mathematical Programming</td>
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<td>MATH 447</td>
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<td>Introduction to Stochastic Processes</td>
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<td>Generalized Linear Models</td>
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<td>MATH 524</td>
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<td>Nonparametric Statistics</td>
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<tr>
<td>MATH 525</td>
<td>4</td>
<td>Sampling Theory and Applications</td>
</tr>
</tbody>
</table>

### 3.11.36.7 Bachelor of Arts (B.A.) - Joint Honours Component Mathematics (36 credits)

Students who wish to study at the Honours level in two Arts disciplines may apply to combine Joint Honours program components from two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

To remain in the Joint Honours program and receive the Joint Honours degree, a student must maintain the standards set by each discipline, as well as by the Faculty. In the Mathematics courses of the program a GPA of 3.00 and a CGPA of 3.00 must be maintained. Students who have difficulty in maintaining the required level should change to another program before entering their final year.

**Program Prerequisites**

Students who have not completed the program prerequisite courses listed below or their equivalents will be required to make up any deficiencies in these courses over and above the 36 credits required for the program.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
</tbody>
</table>
Required Courses (15 credits)

MATH 235 (3)  Algebra 1
MATH 242 (3)  Analysis 1
MATH 248 (3)  Honours Advanced Calculus
MATH 251 (3)  Honours Algebra 2
MATH 255 (3)  Honours Analysis 2

Complementary Courses

21 credits with at 15 credits selected from the list below. The remaining credits are to be chosen from the full list of available Honours courses in Mathematics and Statistics.

MATH 325 (3)  Honours Ordinary Differential Equations
MATH 354 (3)  Honours Analysis 3
MATH 355 (3)  Honours Analysis 4
MATH 356 (3)  Honours Probability
MATH 357 (3)  Honours Statistics
MATH 366 (3)  Honours Complex Analysis
MATH 370 (3)  Honours Algebra 3
MATH 371 (3)  Honours Algebra 4
MATH 380 (3)  Honours Differential Geometry

3.11.37 Middle East Studies (MEST)

3.11.37.1 Location

Morrice Hall
3485 McTavish Street, Room 319
Montreal, Quebec H3A 1Y1

Telephone: 514-398-6077
Fax: 514-398-6731
Website: www.mcgill.ca/mes

3.11.37.2 About Middle East Studies

The Middle East Studies program is designed for students who wish to pursue an interdisciplinary program of study focusing on the Middle East since the rise of Islam. Courses offered include language, history, religion and philosophy, political science, and anthropology. From these are drawn combinations which make up the Major and Minor concentrations, Honours, and Joint Honours in Middle East Studies.

Students wishing to pursue a program in Middle East Studies must consult a program adviser each year to devise a suitable program. Before doing so, students should consult the Middle East Studies’ website at www.mcgill.ca/mes for a full description of each program. Failure to consult an adviser could lead to a delay in completing program requirements. Students wishing to have courses taken at other universities counted as satisfying program requirements must bring copies of their transcripts and course syllabi to the Program Adviser.

3.11.37.3 Middle East Studies (MEST) Faculty

Program Adviser

Professor Laila Parsons, Department of History and Classical Studies and Institute of Islamic Studies, 514-398-7108
Program Committee Chair
L. Parsons (History and Classical Studies)

Program Committee
R. Brynen (Political Science)
M. Hartman (Islamic Studies)
S. Manoukian (Anthropology)
K. Medani (Political Science)

3.11.37.4 Bachelor of Arts (B.A.) - Minor Concentration Middle East Studies (18 credits)
This program may be expanded to the Major Concentration Middle East Studies.

Complementary Courses (18 credits)
18 credits of complementary courses selected from the Middle East Studies course lists as follows:
6 credits of "core" courses from the History list
6 credits from the Religion and Philosophy list with at least 3 credits in "core" courses
6 credits from the Social Sciences list

History
* Note: Core courses are marked by an asterisk (*) in the list below. Courses in the list may be offered by History (HIST), Islamic Studies (ISLA), or Jewish Studies (JWST).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 240</td>
<td>Modern History of Islamic Movements</td>
<td>3</td>
</tr>
<tr>
<td>HIST 339*</td>
<td>Arab-Israeli Conflict</td>
<td>3</td>
</tr>
<tr>
<td>HIST 448</td>
<td>Women, Gender and Sexuality in the Middle East</td>
<td>3</td>
</tr>
<tr>
<td>ISLA 350*</td>
<td>From Tribe to Dynasty</td>
<td>3</td>
</tr>
<tr>
<td>ISLA 355*</td>
<td>Modern History of the Middle East</td>
<td>3</td>
</tr>
<tr>
<td>ISLA 410*</td>
<td>History: Middle-East 1798-1918</td>
<td>3</td>
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<tr>
<td>ISLA 411*</td>
<td>History: Middle-East 1918-1945</td>
<td>3</td>
</tr>
<tr>
<td>ISLA 510D1*</td>
<td>History: Islamic Civilization - Classical</td>
<td>3</td>
</tr>
<tr>
<td>ISLA 510D2*</td>
<td>History: Islamic Civilization - Classical</td>
<td>3</td>
</tr>
<tr>
<td>ISLA 511D1*</td>
<td>History: Islamic Civilization - Mediaeval Era</td>
<td>3</td>
</tr>
<tr>
<td>ISLA 511D2*</td>
<td>History: Islamic Civilization - Mediaeval Era</td>
<td>3</td>
</tr>
<tr>
<td>JWST 323</td>
<td>The Israeli Novel</td>
<td>3</td>
</tr>
<tr>
<td>JWST 366</td>
<td>History of Zionism</td>
<td>3</td>
</tr>
</tbody>
</table>

Religion and Philosophy
* Note: Core courses are marked by an asterisk (**) in the list below. Courses in the list may be offered by Islamic Studies (ISLA), Jewish Studies (JWST), Philosophy (PHIL), Philosophy and Western Religions (PHWR), or Religious Studies (RELG).

** Note: RELG 204 and RELG 256 can only be taken for program credit if taken prior to any "core" courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISLA 200*</td>
<td>Islamic Civilization</td>
<td>3</td>
</tr>
<tr>
<td>ISLA 325*</td>
<td>Introduction to Shi'i Islam</td>
<td>3</td>
</tr>
<tr>
<td>ISLA 345*</td>
<td>Science and Civilization in Islam</td>
<td>3</td>
</tr>
<tr>
<td>ISLA 380*</td>
<td>Islamic Philosophy and Theology</td>
<td>3</td>
</tr>
<tr>
<td>ISLA 383*</td>
<td>Central Questions in Islamic Law</td>
<td>3</td>
</tr>
<tr>
<td>ISLA 505*</td>
<td>Islam: Origin and Early Development</td>
<td>3</td>
</tr>
</tbody>
</table>
ISLA 506* (3)  Islam: Later Developments
ISLA 531D1* (3)  Survey Development of Islamic Thought
ISLA 531D2* (3)  Survey Development of Islamic Thought
JWST 562 (3)  Medieval Islamic and Jewish Philosophy
PHIL 356 (3)  Early Medieval Philosophy
PHWR 300 (3)  Philosophy & Western Religions 1
PHWR 301 (3)  Philosophy & Western Religions 2
RELG 204** (3)  Judaism, Christianity and Islam
RELG 256** (3)  Women in Judaism and Islam

**Social Sciences**

Courses in the list may be offered by Anthropology (ANTH), Islamic Studies (ISLA), or Political Science (POLI).

ANTH 340 (3)  Middle Eastern Society and Culture
ISLA 210 (3)  Muslim Societies
ISLA 360 (3)  Islam and Politics
ISLA 385 (3)  Poetics & Politics in Arabic Literature
ISLA 388 (3)  Persian Literature
ISLA 392 (3)  Arabic Literature as World Literature
ISLA 415 (3)  Modern Iran: Anthropological Approach
ISLA 585 (3)  Arab Women's Literature
POLI 340 (3)  Developing Areas/Middle East
POLI 341 (3)  Foreign Policy: The Middle East
POLI 347 (3)  Arab-Israel Conflict, Crisis, Peace
POLI 437 (3)  Politics in Israel

**Middle East Studies**

MEST 375 (3)  Topics in Middle East Studies
MEST 495 (3)  Middle East Studies: Research Seminar
MEST 496 (3)  Independent Reading and Research

3.11.37.5 Bachelor of Arts (B.A.) - Minor Concentration Middle East Languages (18 credits)

This program may be expanded to the Major Concentration Middle East Studies.

**Complementary Courses (18 credits)**

18 credits of Middle Eastern language - Arabic, Hebrew, Persian, Turkish (lists below), selected as follows:

Either

18 credits (3 levels) in one language, or

12 credits (2 levels) in one language and 6 credits (1 level) in another language.

**Middle East Languages - Arabic**

ISLA 521D1  (4.5)  Introductory Arabic
ISLA 521D2  (4.5)  Introductory Arabic
ISLA 522  (6)  Lower Intermediate Arabic
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISLA 522D1</td>
<td>3</td>
<td>Lower Intermediate Arabic</td>
</tr>
<tr>
<td>ISLA 522D2</td>
<td>3</td>
<td>Lower Intermediate Arabic</td>
</tr>
<tr>
<td>ISLA 523D1</td>
<td>3</td>
<td>Higher Intermediate Arabic</td>
</tr>
<tr>
<td>ISLA 523D2</td>
<td>3</td>
<td>Higher Intermediate Arabic</td>
</tr>
<tr>
<td>ISLA 524</td>
<td>3</td>
<td>Advanced Arabic 1</td>
</tr>
<tr>
<td>ISLA 525</td>
<td>3</td>
<td>Advanced Arabic 2</td>
</tr>
</tbody>
</table>

### Middle East Languages - Hebrew

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>JWST 200</td>
<td>12</td>
<td>Hebrew Language (Intensive)</td>
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<tr>
<td>JWST 220D1</td>
<td>3</td>
<td>Introductory Hebrew</td>
</tr>
<tr>
<td>JWST 220D2</td>
<td>3</td>
<td>Introductory Hebrew</td>
</tr>
<tr>
<td>JWST 320D1</td>
<td>3</td>
<td>Intermediate Hebrew</td>
</tr>
<tr>
<td>JWST 320D2</td>
<td>3</td>
<td>Intermediate Hebrew</td>
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<tr>
<td>JWST 340D1</td>
<td>3</td>
<td>Advanced Hebrew</td>
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<tr>
<td>JWST 340D2</td>
<td>3</td>
<td>Advanced Hebrew</td>
</tr>
<tr>
<td>JWST 367</td>
<td>3</td>
<td>Studies in Hebrew Language and Literature</td>
</tr>
<tr>
<td>JWST 368</td>
<td>3</td>
<td>Studies in Hebrew Language and Literature</td>
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<tr>
<td>JWST 369</td>
<td>3</td>
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<tr>
<td>JWST 370</td>
<td>3</td>
<td>Studies in Hebrew Language and Literature</td>
</tr>
<tr>
<td>JWST 411</td>
<td>3</td>
<td>Topics: Modern Hebrew Literature 1881-1948</td>
</tr>
<tr>
<td>JWST 412</td>
<td>3</td>
<td>Topics: Modern Hebrew Literature 2</td>
</tr>
<tr>
<td>JWST 438</td>
<td>3</td>
<td>Survey of Hebrew Literature 1</td>
</tr>
<tr>
<td>JWST 439</td>
<td>3</td>
<td>Survey of Hebrew Literature 2</td>
</tr>
</tbody>
</table>

### Middle East Languages - Persian

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISLA 541D1</td>
<td>3</td>
<td>Introductory Persian</td>
</tr>
<tr>
<td>ISLA 541D2</td>
<td>3</td>
<td>Introductory Persian</td>
</tr>
<tr>
<td>ISLA 542D1</td>
<td>3</td>
<td>Lower Intermediate Persian</td>
</tr>
<tr>
<td>ISLA 542D2</td>
<td>3</td>
<td>Lower Intermediate Persian</td>
</tr>
<tr>
<td>ISLA 543</td>
<td>3</td>
<td>Upper Intermediate Persian 1</td>
</tr>
<tr>
<td>ISLA 544</td>
<td>3</td>
<td>Upper Intermediate Persian 2</td>
</tr>
<tr>
<td>ISLA 545</td>
<td>3</td>
<td>Advanced Persian 1</td>
</tr>
<tr>
<td>ISLA 546</td>
<td>3</td>
<td>Advanced Persian 2</td>
</tr>
</tbody>
</table>

### Middle East Languages - Turkish

Students who need to take a third level in Turkish should consult the Program Adviser for course options.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISLA 532D1</td>
<td>3</td>
<td>Introductory Turkish</td>
</tr>
<tr>
<td>ISLA 532D2</td>
<td>3</td>
<td>Introductory Turkish</td>
</tr>
<tr>
<td>ISLA 533D1</td>
<td>3</td>
<td>Lower Intermediate Turkish</td>
</tr>
<tr>
<td>ISLA 533D2</td>
<td>3</td>
<td>Lower Intermediate Turkish</td>
</tr>
<tr>
<td>ISLA 534D1</td>
<td>3</td>
<td>Higher Intermediate Turkish</td>
</tr>
<tr>
<td>ISLA 534D2</td>
<td>3</td>
<td>Higher Intermediate Turkish</td>
</tr>
</tbody>
</table>
Bachelor of Arts (B.A.) - Major Concentration Middle East Studies (36 credits)

Required Courses (3 credits)

MEST 495 (3) Middle East Studies: Research Seminar

Complementary Courses (33 credits)

33 credits of complementary courses selected from the Middle East Studies course lists as follows:

12 credits (2 levels) in one Middle Eastern language - Arabic, Hebrew, Persian, Turkish (lists below). In the case of Arabic, the first two levels involve 15 credits. The extra 3 credits will be counted toward the remainder of the complementary courses requirement.

21 credits (18 if Arabic has been chosen), distributed as follows:

- 6-9 credits from the History list with at least 6 credits in "core" courses
- 6-9 credits from the Religion and Philosophy list with at least 6 credits in "core" courses
- 3-6 credits from the Social Sciences list

Middle East Languages - Arabic

ISLA 521D1 (4.5) Introductory Arabic
ISLA 521D2 (4.5) Introductory Arabic
ISLA 522 (6) Lower Intermediate Arabic
ISLA 522D1 (3) Lower Intermediate Arabic
ISLA 522D2 (3) Lower Intermediate Arabic
ISLA 523D1 (3) Higher Intermediate Arabic
ISLA 523D2 (3) Higher Intermediate Arabic
ISLA 524 (3) Advanced Arabic 1
ISLA 525 (3) Advanced Arabic 2

Middle East Languages - Hebrew

JWST 200 (12) Hebrew Language (Intensive)
JWST 220D1 (3) Introductory Hebrew
JWST 220D2 (3) Introductory Hebrew
JWST 320D1 (3) Intermediate Hebrew
JWST 320D2 (3) Intermediate Hebrew
JWST 340D1 (3) Advanced Hebrew
JWST 340D2 (3) Advanced Hebrew
JWST 367 (3) Studies in Hebrew Language and Literature
JWST 368 (3) Studies in Hebrew Language and Literature
JWST 369 (3) Studies in Hebrew Language and Literature
JWST 370 (3) Studies in Hebrew Language and Literature
JWST 411 (3) Topics: Modern Hebrew Literature 1881-1948
JWST 412 (3) Topics: Modern Hebrew Literature 2
JWST 438 (3) Survey of Hebrew Literature 1
JWST 439 (3) Survey of Hebrew Literature 2
### Middle East Languages - Persian

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISLA 541D1</td>
<td>3</td>
<td>Introductory Persian</td>
</tr>
<tr>
<td>ISLA 541D2</td>
<td>3</td>
<td>Introductory Persian</td>
</tr>
<tr>
<td>ISLA 542D1</td>
<td>3</td>
<td>Lower Intermediate Persian</td>
</tr>
<tr>
<td>ISLA 542D2</td>
<td>3</td>
<td>Lower Intermediate Persian</td>
</tr>
<tr>
<td>ISLA 543</td>
<td>3</td>
<td>Upper Intermediate Persian 1</td>
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<tr>
<td>ISLA 544</td>
<td>3</td>
<td>Upper Intermediate Persian 2</td>
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<td>ISLA 545</td>
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<td>Advanced Persian 1</td>
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<tr>
<td>ISLA 546</td>
<td>3</td>
<td>Advanced Persian 2</td>
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</tbody>
</table>

### Middle East Languages - Turkish

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISLA 532D1</td>
<td>3</td>
<td>Introductory Turkish</td>
</tr>
<tr>
<td>ISLA 532D2</td>
<td>3</td>
<td>Introductory Turkish</td>
</tr>
<tr>
<td>ISLA 533D1</td>
<td>3</td>
<td>Lower Intermediate Turkish</td>
</tr>
<tr>
<td>ISLA 533D2</td>
<td>3</td>
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<td>Higher Intermediate Turkish</td>
</tr>
<tr>
<td>ISLA 535D1</td>
<td>3</td>
<td>Advanced Turkish</td>
</tr>
<tr>
<td>ISLA 535D2</td>
<td>3</td>
<td>Advanced Turkish</td>
</tr>
</tbody>
</table>

### History

*Note: Core courses are marked by an asterisk (“*”) in the list below. Courses in the list may be offered by History (HIST), Islamic Studies (ISLA), or Jewish Studies (JWST).*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 240*</td>
<td>3</td>
<td>Modern History of Islamic Movements</td>
</tr>
<tr>
<td>HIST 339*</td>
<td>3</td>
<td>Arab-Israeli Conflict</td>
</tr>
<tr>
<td>HIST 448</td>
<td>3</td>
<td>Women, Gender and Sexuality in the Middle East</td>
</tr>
<tr>
<td>ISLA 350*</td>
<td>3</td>
<td>From Tribe to Dynasty</td>
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<td>3</td>
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<td>History: Islamic Civilization - Classical</td>
</tr>
<tr>
<td>ISLA 511D1*</td>
<td>3</td>
<td>History: Islamic Civilization - Mediaeval Era</td>
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<tr>
<td>ISLA 511D2*</td>
<td>3</td>
<td>History: Islamic Civilization - Mediaeval Era</td>
</tr>
<tr>
<td>JWST 323</td>
<td>3</td>
<td>The Israeli Novel</td>
</tr>
<tr>
<td>JWST 366</td>
<td>3</td>
<td>History of Zionism</td>
</tr>
</tbody>
</table>

### Religion and Philosophy

*Note: Core courses are marked by an asterisk (“*”) in the list below. Courses in the list may be offered by Islamic Studies (ISLA), Jewish Studies (JWST), Philosophy (PHIL), Philosophy and Western Religions (PHWR), or Religious Studies (RELG).*

**Note: RELG 204 and RELG 256 can only be taken for program credit if taken prior to any "core" courses.*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISLA 200*</td>
<td>3</td>
<td>Islamic Civilization</td>
</tr>
<tr>
<td>Course Code</td>
<td>Credit Hours</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------</td>
<td>--------------</td>
</tr>
<tr>
<td>ISLA 325*</td>
<td>(3)</td>
<td>Introduction to Shi'i Islam</td>
</tr>
<tr>
<td>ISLA 345*</td>
<td>(3)</td>
<td>Science and Civilization in Islam</td>
</tr>
<tr>
<td>ISLA 380*</td>
<td>(3)</td>
<td>Islamic Philosophy and Theology</td>
</tr>
<tr>
<td>ISLA 383*</td>
<td>(3)</td>
<td>Central Questions in Islamic Law</td>
</tr>
<tr>
<td>ISLA 505*</td>
<td>(3)</td>
<td>Islam: Origin and Early Development</td>
</tr>
<tr>
<td>ISLA 506*</td>
<td>(3)</td>
<td>Islam: Later Developments</td>
</tr>
<tr>
<td>ISLA 531D1*</td>
<td>(3)</td>
<td>Survey Development of Islamic Thought</td>
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<tr>
<td>ISLA 531D2*</td>
<td>(3)</td>
<td>Survey Development of Islamic Thought</td>
</tr>
<tr>
<td>JWST 562</td>
<td>(3)</td>
<td>Medieval Islamic and Jewish Philosophy</td>
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<tr>
<td>PHIL 356</td>
<td>(3)</td>
<td>Early Medieval Philosophy</td>
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<td>PHWR 300</td>
<td>(3)</td>
<td>Philosophy &amp; Western Religions 1</td>
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<td>PHWR 301</td>
<td>(3)</td>
<td>Philosophy &amp; Western Religions 2</td>
</tr>
<tr>
<td>RELG 204**</td>
<td>(3)</td>
<td>Judaism, Christianity and Islam</td>
</tr>
<tr>
<td>RELG 256**</td>
<td>(3)</td>
<td>Women in Judaism and Islam</td>
</tr>
</tbody>
</table>

**Social Sciences**

Courses in the list may be offered by Anthropology (ANTH), Islamic Studies (ISLA), or Political Science (POLI).

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>ANTH 340</td>
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<td>Middle Eastern Society and Culture</td>
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<tr>
<td>ISLA 210</td>
<td>(3)</td>
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<td>Islam and Politics</td>
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<tr>
<td>ISLA 385</td>
<td>(3)</td>
<td>Poetics &amp; Politics in Arabic Literature</td>
</tr>
<tr>
<td>ISLA 388</td>
<td>(3)</td>
<td>Persian Literature</td>
</tr>
<tr>
<td>ISLA 392</td>
<td>(3)</td>
<td>Arabic Literature as World Literature</td>
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<td>(3)</td>
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<td>(3)</td>
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<td>(3)</td>
<td>Foreign Policy: The Middle East</td>
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<td>(3)</td>
<td>Arab-Israel Conflict, Crisis, Peace</td>
</tr>
<tr>
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<td>(3)</td>
<td>Politics in Israel</td>
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**Middle East Studies**

<table>
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<tr>
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<tbody>
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<td>Topics in Middle East Studies</td>
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<td>(3)</td>
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<tr>
<td>MEST 496</td>
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<td>Independent Reading and Research</td>
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</table>

3.11.37.7 Bachelor of Arts (B.A.) - Honours Middle East Studies (60 credits)

Honours students must maintain a program GPA of 3.30 in their Middle East Studies courses and, according to Faculty regulations, a minimum CGPA of 3.00 in general.

**Required Courses (6 credits)**

<table>
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<tr>
<td>MEST 496</td>
<td>(3)</td>
<td>Independent Reading and Research</td>
</tr>
</tbody>
</table>
Complementary Courses (54 credits)

54 credits of complementary courses selected from the Middle East Studies course lists as follows:

- 18-21 credits (3 levels) in one Middle Eastern language - Arabic, Hebrew, Persian, Turkish (lists below)
- 9-15 credits from the History list with at least 9 credits in "core" courses
- 9-15 credits from the Religion and Philosophy list with at least 6 credits in "core" courses
- 6-12 credits from the Social Sciences list

### Middle East Languages - Arabic

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ISLA 521D1</td>
<td>(4.5)</td>
<td>Introductory Arabic</td>
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<td>(4.5)</td>
<td>Introductory Arabic</td>
</tr>
<tr>
<td>ISLA 522</td>
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<td>ISLA 522D1</td>
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### Middle East Languages - Hebrew

<table>
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<tr>
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<th>Credits</th>
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<tr>
<td>JWST 200</td>
<td>(12)</td>
<td>Hebrew Language (Intensive)</td>
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<tr>
<td>JWST 220D1</td>
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<td>Introductory Hebrew</td>
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<tr>
<td>JWST 220D2</td>
<td>(3)</td>
<td>Introductory Hebrew</td>
</tr>
<tr>
<td>JWST 320D1</td>
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<td>Studies in Hebrew Language and Literature</td>
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<td>JWST 368</td>
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<td>JWST 369</td>
<td>(3)</td>
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<td>(3)</td>
<td>Studies in Hebrew Language and Literature</td>
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<tr>
<td>JWST 411</td>
<td>(3)</td>
<td>Topics: Modern Hebrew Literature 1881-1948</td>
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<tr>
<td>JWST 412</td>
<td>(3)</td>
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<td>JWST 439</td>
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### Middle East Languages - Persian

Students who need to take a third level in Persian should consult the program adviser for course options.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>ISLA 541D1</td>
<td>(3)</td>
<td>Introductory Persian</td>
</tr>
<tr>
<td>ISLA 541D2</td>
<td>(3)</td>
<td>Introductory Persian</td>
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<tr>
<td>ISLA 542D1</td>
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</tr>
<tr>
<td>ISLA 544</td>
<td>(3)</td>
<td>Upper Intermediate Persian 2</td>
</tr>
</tbody>
</table>
ISLA 545  (3)  Advanced Persian 1
ISLA 546  (3)  Advanced Persian 2

**Middle East Languages - Turkish**

Students who need to take a third level in Turkish should consult the Program Adviser for course options.

ISLA 532D1  (3)  Introductory Turkish
ISLA 532D2  (3)  Introductory Turkish
ISLA 533D1  (3)  Lower Intermediate Turkish
ISLA 533D2  (3)  Lower Intermediate Turkish
ISLA 534D1  (3)  Higher Intermediate Turkish
ISLA 534D2  (3)  Higher Intermediate Turkish
ISLA 535D1  (3)  Advanced Turkish
ISLA 535D2  (3)  Advanced Turkish

**History**

* Note: Core courses are marked by an asterisk (“*”) in the list below. Courses in the list may be offered by History (HIST), Islamic Studies (ISLA), or Jewish Studies (JWST).

HIST 240*  (3)  Modern History of Islamic Movements
HIST 339*  (3)  Arab-Israeli Conflict
HIST 448  (3)  Women, Gender and Sexuality in the Middle East
ISLA 350*  (3)  From Tribe to Dynasty
ISLA 355*  (3)  Modern History of the Middle East
ISLA 410*  (3)  History: Middle-East 1798-1918
ISLA 411*  (3)  History: Middle-East 1918-1945
ISLA 510D1*  (3)  History: Islamic Civilization - Classical
ISLA 510D2*  (3)  History: Islamic Civilization - Classical
ISLA 511D1*  (3)  History: Islamic Civilization - Mediaeval Era
ISLA 511D2*  (3)  History: Islamic Civilization - Mediaeval Era
JWST 323  (3)  The Israeli Novel
JWST 366  (3)  History of Zionism

**Religion and Philosophy**

* Note: Core courses are marked by an asterisk (“*”) in the list below. Courses in the list may be offered by Islamic Studies (ISLA), Jewish Studies (JWST), Philosophy (PHIL), Philosophy and Western Religions (PHWR), or Religious Studies (RELG).

** Note: RELG 204 and RELG 256 can only be taken for program credit if taken prior to any "core" courses.

ISLA 200*  (3)  Islamic Civilization
ISLA 325*  (3)  Introduction to Shi'i Islam
ISLA 345*  (3)  Science and Civilization in Islam
ISLA 380*  (3)  Islamic Philosophy and Theology
ISLA 383*  (3)  Central Questions in Islamic Law
ISLA 505*  (3)  Islam: Origin and Early Development
ISLA 506*  (3)  Islam: Later Developments
ISLA 531D1*  (3)  Survey Development of Islamic Thought
### Social Sciences

Courses in the list may be offered by Anthropology (ANTH), Islamic Studies (ISLA), or Political Science (POLI).

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>ANTH 340</td>
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<td>Middle Eastern Society and Culture</td>
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<td>ISLA 210</td>
<td>(3)</td>
<td>Muslim Societies</td>
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<td>ISLA 360</td>
<td>(3)</td>
<td>Islam and Politics</td>
</tr>
<tr>
<td>ISLA 385</td>
<td>(3)</td>
<td>Poetics &amp; Politics in Arabic Literature</td>
</tr>
<tr>
<td>ISLA 388</td>
<td>(3)</td>
<td>Persian Literature</td>
</tr>
<tr>
<td>ISLA 392</td>
<td>(3)</td>
<td>Arabic Literature as World Literature</td>
</tr>
<tr>
<td>ISLA 415</td>
<td>(3)</td>
<td>Modern Iran: Anthropological Approach</td>
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<tr>
<td>ISLA 585</td>
<td>(3)</td>
<td>Arab Women's Literature</td>
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<td>POLI 340</td>
<td>(3)</td>
<td>Developing Areas/Middle East</td>
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<td>POLI 341</td>
<td>(3)</td>
<td>Foreign Policy: The Middle East</td>
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<tr>
<td>POLI 347</td>
<td>(3)</td>
<td>Arab-Israel Conflict, Crisis, Peace</td>
</tr>
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<td>POLI 437</td>
<td>(3)</td>
<td>Politics in Israel</td>
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### Middle East Studies

<table>
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<tr>
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<th>Credits</th>
<th>Title</th>
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<tr>
<td>MEST 375</td>
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<td>Topics in Middle East Studies</td>
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<tr>
<td>MEST 495</td>
<td>(3)</td>
<td>Middle East Studies: Research Seminar</td>
</tr>
<tr>
<td>MEST 496</td>
<td>(3)</td>
<td>Independent Reading and Research</td>
</tr>
</tbody>
</table>

### 3.11.37.8 Bachelor of Arts (B.A.) - Joint Honours Component Middle East Studies (36 credits)

Students wishing to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see “Overview of Programs Offered” and “Joint Honours Programs”.

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable).

Joint Honours students must maintain a program GPA of 3.30 in their Middle East Studies courses and, according to Faculty regulations, a minimum CGPA of 3.00 in general.

#### Required Courses (3 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>MEST 495</td>
<td>(3)</td>
<td>Middle East Studies: Research Seminar</td>
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</table>

#### Complementary Courses (33 credits)

33 credits of complementary courses selected from the Middle East Studies course lists as follows:

- 12 credits (2 levels) in one Middle Eastern language - Arabic, Hebrew, Persian, Turkish (lists below). In the case of Arabic, the first two levels involve 15 credits. The extra 3 credits will be counted toward the remainder of the complementary courses requirement.
- 21 credits (18 if Arabic has been chosen), distributed as follows:
- 6-9 credits from the History list with at least 6 credits in "core" courses
6-9 credits from the Religion and Philosophy list with at least 6 credits in "core" courses
3-6 credits from the Social Sciences list
At least 6 of the complementary credits must be at the 400 level or above.

### Middle East Languages - Arabic

<table>
<thead>
<tr>
<th>Code</th>
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<th>Course Description</th>
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<td>Introductory Arabic</td>
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<td>4.5</td>
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<td>ISLA 522D1</td>
<td>3</td>
<td>Lower Intermediate Arabic</td>
</tr>
<tr>
<td>ISLA 522D2</td>
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<td>ISLA 525</td>
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### Middle East Languages - Hebrew

<table>
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<tbody>
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<td>JWST 320D1</td>
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<td>JWST 320D2</td>
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<td>Advanced Hebrew</td>
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<td>Topics: Modern Hebrew Literature 1881-1948</td>
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<tr>
<td>JWST 438</td>
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### Middle East Languages - Persian

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<tbody>
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<td>ISLA 541D2</td>
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### Middle East Languages - Turkish

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**History**

*Note: Core courses are marked by an asterisk (*) in the list below. Courses in the list may be offered by History (HIST), Islamic Studies (ISLA), or Jewish Studies (JWST).*

<table>
<thead>
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<td>Arab-Israeli Conflict</td>
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<td>HIST 448</td>
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<td>Women, Gender and Sexuality in the Middle East</td>
</tr>
<tr>
<td>ISLA 350*</td>
<td>3</td>
<td>From Tribe to Dynasty</td>
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<tr>
<td>ISLA 355*</td>
<td>3</td>
<td>Modern History of the Middle East</td>
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<tr>
<td>ISLA 410*</td>
<td>3</td>
<td>History: Middle-East 1798-1918</td>
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<tr>
<td>ISLA 411*</td>
<td>3</td>
<td>History: Middle-East 1918-1945</td>
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<td>ISLA 510D1*</td>
<td>3</td>
<td>History: Islamic Civilization - Classical</td>
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<td>ISLA 510D2*</td>
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<td>History: Islamic Civilization - Classical</td>
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<tr>
<td>ISLA 511D1*</td>
<td>3</td>
<td>History: Islamic Civilization - Mediaeval Era</td>
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<td>ISLA 511D2*</td>
<td>3</td>
<td>History: Islamic Civilization - Mediaeval Era</td>
</tr>
<tr>
<td>JWST 323</td>
<td>3</td>
<td>The Israeli Novel</td>
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<tr>
<td>JWST 366</td>
<td>3</td>
<td>History of Zionism</td>
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</table>

**Religion and Philosophy**

*Note: Core courses are marked by an asterisk (*) in the list below. Courses in the list may be offered by Islamic Studies (ISLA), Jewish Studies (JWST), Philosophy (PHIL), Philosophy and Western Religions (PHWR), or Religious Studies (RELG).**

**Note: RELG 204 and RELG 256 can only be taken for program credit if taken prior to any "core" courses.*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
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<tr>
<td>ISLA 200*</td>
<td>3</td>
<td>Islamic Civilization</td>
</tr>
<tr>
<td>ISLA 325*</td>
<td>3</td>
<td>Introduction to Shi'i Islam</td>
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<tr>
<td>ISLA 345*</td>
<td>3</td>
<td>Science and Civilization in Islam</td>
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<tr>
<td>ISLA 380*</td>
<td>3</td>
<td>Islamic Philosophy and Theology</td>
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<td>ISLA 383*</td>
<td>3</td>
<td>Central Questions in Islamic Law</td>
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<tr>
<td>ISLA 505*</td>
<td>3</td>
<td>Islam: Origin and Early Development</td>
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<tr>
<td>ISLA 506*</td>
<td>3</td>
<td>Islam: Later Developments</td>
</tr>
<tr>
<td>ISLA 531D1*</td>
<td>3</td>
<td>Survey Development of Islamic Thought</td>
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<td>ISLA 531D2*</td>
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<td>Survey Development of Islamic Thought</td>
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</table>
Social Sciences
Courses in the list may be offered by Anthropology (ANTH), Islamic Studies (ISLA), or Political Science (POLI).

ANTH 340 (3) Middle Eastern Society and Culture
ISLA 210 (3) Muslim Societies
ISLA 360 (3) Islam and Politics
ISLA 385 (3) Poetics & Politics in Arabic Literature
ISLA 388 (3) Persian Literature
ISLA 392 (3) Arabic Literature as World Literature
ISLA 415 (3) Modern Iran: Anthropological Approach
ISLA 585 (3) Arab Women's Literature
POLI 340 (3) Developing Areas/Middle East
POLI 341 (3) Foreign Policy: The Middle East
POLI 347 (3) Arab-Israel Conflict, Crisis, Peace
POLI 437 (3) Politics in Israel

Middle East Studies

MEST 375 (3) Topics in Middle East Studies
MEST 495 (3) Middle East Studies: Research Seminar
MEST 496 (3) Independent Reading and Research

3.11.38 Music (MUAR)

3.11.38.1 Location
Strathcona Music Building
555 Sherbrooke Street West
Montreal, Quebec H3A 1E3

Telephone: 514-398-4535
Fax: 514-398-8061
Website: www.mcgill.ca/music

3.11.38.2 About Music Programs in Arts
Available within the Faculty of Arts are a major and a minor concentration in Music. Arts students may also apply to the Minor in Musical Applications of Technology and the Minor in Musical Science and Technology.

Admission to the B.A. program is granted according to criteria established by the Faculty of Arts.

Students in the B.A. Freshman Program who are considering a Music concentration should see the Freshman Adviser in Arts OASIS in Dawson Hall. They should also see the Music Adviser in order to ensure that they include any necessary prerequisite Music courses (based on the results of placement examinations) in their first-year selection.

Students interested in a more intensive music program, including practical instruction on an instrument or in voice and additional ensemble participation, should consider the B.Mus. degree or the diplomas offered by the Schulich School of Music; see Schulich School of Music > Degrees and Diplomas Offered.

3.11.38.3 Music Ensembles
Arts students may, with the permission of the instructor and the Associate Dean (Student Affairs) of the Faculty of Arts, participate in one of the following ensembles in a given year. Auditions are held starting the week prior to the beginning of classes in September and continuing during that first week. The
schedule and requirements for these auditions are available at the end of June from the Department of Performance office, 514-398-4542. Normally both the Fall and Winter sections of an ensemble are taken in the same academic year.

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<tr>
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3.11.38.4 Courses Offered by the Schulich School of Music as electives for students in the Faculties of Arts, Science, and Education

The courses referred to below are also open to students from other faculties. Other Music courses may be taken by qualified students from other faculties providing they obtain permission from the relevant department in the Schulich School of Music and from the Associate Dean of their own faculty.

All courses with the prefix MUAR.

These are considered to be courses taught in the Faculty of Arts, but they cannot be credited toward the B.A. or B.Sc. Music programs.

The Music History and Literature (MUHL), Music Theory and Analysis (MUTH), and Music Technology (MUMT) courses listed below are considered by the Faculty of Arts as courses taught in the Faculty; however, the Faculty of Science considers them to be courses taught outside of the Faculty.

These courses are intended for students who have at least high school matriculation music or the equivalent. Students who do not have the formal music prerequisites require the permission of the Chair of the Department of Music Research to register for any of these courses.

**MUHL (Music History and Literature)**

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<td>MUHL 286</td>
<td>(3)</td>
<td>Critical Thinking about Music</td>
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**MUTH (Music Theory and Analysis)**

Students not in the B.A. or B.Sc. Music programs are not required to take the corequisites for the following MUTH courses. However, students intending later to enter either the B.A. Major concentration or the B.Mus. program would then be required to sit placement tests in Musicianship and Keyboard Proficiency and may be required to take the corequisite courses.

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<thead>
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<td>Theory and Analysis 2</td>
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<td>MUTH 250</td>
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<td>MUTH 251</td>
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**MUMT (Music Technology)**

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<td>MUMT 203</td>
<td>(3)</td>
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<td>MUMT 301</td>
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<td>(3)</td>
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<td>New Media Production 2</td>
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</table>

3.11.38.5 Music (MUAR) Faculty

Department of Music Research Chair

Lloyd Whitesell
3.11.38.6 Bachelor of Arts (B.A.) - Minor Concentration Music (18 credits)

Students in the B.A. Freshman program who are considering a Music concentration should see the Freshman adviser in Arts OASIS in Dawson Hall. They should also see a Music adviser in order to ensure that they include any necessary prerequisite Music courses (based on the results of placement examinations) in their first-year selection. Questions regarding the requirements of the B.A. Minor Concentration and especially elective courses should be addressed to Arts OASIS.

Prerequisite Courses

Students who have not successfully completed the diagnostic placement exams for the required courses for this program will be asked to register for one or both of the courses below. These courses may not be counted toward the 18 credits of the program requirements.

- MUTH 150 (3) Theory and Analysis 1
- MUTH 151 (3) Theory and Analysis 2

Required Courses (9 credits)

Prior to registering for each required course, students must take a diagnostic placement exam. If the appropriate level is not achieved on the examination, students will be asked to register for one or both of the prerequisite courses.

- MUHL 286 (3) Critical Thinking About Music
- MUTH 250 (3) Theory and Analysis 3
- MUTH 251 (3) Theory and Analysis 4

Complementary Courses (9 credits)

Students may select from courses in the Schulich School of Music except for courses with a MUAR subject code. Students must meet all prerequisite and/or corequisite requirements before registering.

3.11.38.7 Bachelor of Arts (B.A.) - Major Concentration Music (36 credits)

This Major concentration studies music as a vital art form in contemporary society and in the history of Western civilization. Its central purpose emphasizes music within broader intellectual and cultural contexts; the Major concentration's premise is that, as a product of culture, music must be considered in relation to the other humanistic disciplines. This degree could be an excellent preparation for graduate work in music (musicology, music theory, music librarianship, music journalism, arts administration) or for professional studies in other fields.

Students in the Major concentration MUST consult the Adviser PRIOR to registration each year. Questions regarding the requirements of the B.A. Major Concentration and especially elective courses should be addressed to Arts OASIS in Dawson Hall.

Prerequisite Courses

Students who have not successfully completed the diagnostic placement exams for the required courses for this program will be asked to register for one or more of the courses below. These courses may not be counted toward the 36 credits of the program requirements.

- MUSP 140 (2) Musicianship Training 1
- MUSP 141 (2) Musicianship Training 2
- MUSP 170 (1) Musicianship (Keyboard) 1
- MUSP 171 (1) Musicianship (Keyboard) 2
- MUTH 150 (3) Theory and Analysis 1
- MUTH 151 (3) Theory and Analysis 2
Required Courses (16 credits)

Prior to registering for the required courses MUSP 240, MUSP 241, MUTH 250, and MUTH 251, students must take the diagnostic placement exams. If the appropriate level is not achieved on the examination, students will be asked to register for one or more prerequisite courses.

- MUHL 286 (3) Critical Thinking About Music
- MUHL 570 (3) Research Methods in Music
- MUSP 240 (2) Musicianship Training 3
- MUSP 241 (2) Musicianship Training 4
- MUTH 250 (3) Theory and Analysis 3
- MUTH 251 (3) Theory and Analysis 4

Complementary Courses (20 credits)

Students select from courses offered by the Schulich School of Music except for courses with a MUAR subject code. Students must meet all prerequisite and/or corequisite requirements before registering.

3.11.38.8 Music (MUAR) Related Programs

3.11.38.8.1 Minor in Musical Applications of Technology

(18 credits) (Non-Expandable)

[Program registration cannot be done via Minerva.]

Detailed information about this program is found under Schulich School of Music > Minor Musical Applications of Technology (18 credits).

3.11.38.8.2 Minor in Musical Science and Technology

(18 credits) (Non-Expandable)

[Program registration cannot be done via Minerva.]

Detailed information about this program is found under Schulich School of Music > Minor Musical Science and Technology (18 credits).

3.11.39 North American Studies Program (NAST)

3.11.39.1 Location

Interdisciplinary Programs Office, Faculty of Arts
Dawson Hall, Room 112B
853 Sherbrooke Street West
Montreal, Quebec H3A 2T6

Telephone: 514-398-4400 ext. 09557
Fax: 514-398-7185
Email: interdisciplinary.arts@mcgill.ca
Website: www.mcgill.ca/nast

Adviser: Karin Bourgeois

3.11.39.2 About North American Studies Program

North American Studies provides a comprehensive view of civilization on this continent, with a special emphasis on the United States. The peoples of the continent are examined in the first instance from the perspective of economics, political science, literature, and history. Subsequent courses are available from several other disciplines as well. Foundation and capstone seminars constitute a vital part of the program. The goal is to attain mastery over diverse material and to develop an integrated knowledge of society on this continent.

Independent study, internships, and university exchange arrangements are available within the context of the program.

Graduates of the program are well prepared for several types of professional options, including those that require advanced degrees.

3.11.39.3 North American Studies Program (NAST) Faculty

Program Director

Professor T. Velk (Economics)
### Program Committee Chair
Professor H. Waller (*Political Science*)

### Program Committee
- Charles Boberg (*Linguistics*)
- Allan Hepburn (*English*)
- Miranda Hickman (*English*)
- Leonard Moore (*History*)
- Jason Opal (*History*)
- Vincent Pouliot (*Political Science*)

### Bachelor of Arts (B.A.) - Minor Concentration North American Studies (18 credits)
This program may be expanded to the Major Concentration North American Studies.

#### Required Courses (9 credits)
- ECON 205 (3) *An Introduction to Political Economy*
- HIST 211 (3) *American History to 1865*
- NAST 401 (3) *Interdisciplinary Seminar - North American Studies*

#### Complementary Courses (9 credits)
9 credits to be chosen from at least two departments from the list below:

* Note: Only one of ENGL 225, ENGL 226, or ENGL 227 may be selected.

** Note: It is strongly recommended that students take NAST 201.

- ECON 219 (3) *Current Economic Problems: Topics*
- ECON 223 (3) *Political Economy of Trade Policy*
- ECON 302 (3) *Money, Banking & Government Policy*
- ECON 304 (3) *Financial Instruments & Institutions*
- ECON 311 (3) *United States Economic Development*
- ENGL 225* (3) *American Literature 1*
- ENGL 226* (3) *American Literature 2*
- ENGL 227* (3) *American Literature 3*
- ENGL 324 (3) *20th Century American Prose*
- ENGL 325 (3) *Modern American Fiction*
- ENGL 326 (3) *19th Century American Prose*
- ENGL 327 (3) *Canadian Prose Fiction 1*
- ENGL 328 (3) *Development of Canadian Poetry 1*
- ENGL 333 (3) *Development of Canadian Poetry 2*
- HIST 221 (3) *United States since 1865*
- HIST 301 (3) *U.S. Presidential Campaigning*
- HIST 311 (3) *The Gilded Age and The Progressive Era*
- HIST 322 (3) *Canada: American Presence since 1939*
- HIST 331 (3) *The United States Between the Wars*
- HIST 341 (3) *The New Nation: U.S. 1800-1850*
HIST 342 (3) Canada: External Relations since 1867
HIST 351 (3) Themes in U.S. History since 1865
HIST 360 (3) Latin America since 1825
HIST 363 (3) Canada 1870-1914
NAST 201** (3) Introduction to North American Studies
NAST 471 (3) Topics in North American Studies 1
NAST 472 (3) Topics in North American Studies 2
NAST 490 (3) Independent Reading & Research
NAST 499 (3) Arts Internships: North American Studies
POLI 318 (3) Comparative Local Government
POLI 319 (3) Politics of Latin America
POLI 325D1 (3) Government and Politics: United States
POLI 325D2 (3) Government and Politics: United States
POLI 342 (3) Canadian Foreign Policy
POLI 346 (3) American Foreign Policy
POLI 371 (3) Challenge of Canadian Federalism
POLI 425 (3) Topics in American Politics

3.11.39.5 Bachelor of Arts (B.A.) - Major Concentration North American Studies (36 credits)

Required Courses (12 credits)

CANS 200 (3) Introduction to the Study of Canada
ECON 205 (3) An Introduction to Political Economy
NAST 201 (3) Introduction to North American Studies
NAST 401 (3) Interdisciplinary Seminar - North American Studies

Complementary Courses (24 credits)

24 credits selected as follows:

Communication Studies, Economics, English, History, Political Science

12 credits chosen from at least three disciplines from the list below:

* Note: Only one of ENGL 225, ENGL 226, or ENGL 227 may be selected.

** Note: Prerequisites for POLI 325D1/D2 will be waived for students in the North American Studies program.

COMS 230 (3) Communication and Democracy
ECON 219 (3) Current Economic Problems: Topics
ECON 223 (3) Political Economy of Trade Policy
ENGL 225* (3) American Literature 1
ENGL 226* (3) American Literature 2
ENGL 227* (3) American Literature 3
HIST 211 (3) American History to 1865
HIST 221 (3) United States since 1865
POLI 325D1** (3) Government and Politics: United States
POLI 325D2** (3) Government and Politics: United States
### Group A

6 credits chosen from Group A:

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<td>ANTH 338</td>
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<td>Native Peoples of North America</td>
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<td>CANS 305</td>
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<td>CANS 306</td>
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<td>Issues in Native Studies</td>
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<td>CANS 307</td>
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<td>Canada in the World</td>
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<td>ECON 304</td>
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<td>SOCI 327</td>
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**Group B**

6 credits chosen from Group B:

*Note: From Group B, either ECON 306D1/D2 or ECON 426 may be taken but not both.*

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<td>Topics in Modern U.S. History</td>
</tr>
<tr>
<td>HIST 461D2</td>
<td>(3)</td>
<td>Topics in Modern U.S. History</td>
</tr>
<tr>
<td>HIST 462D1</td>
<td>(3)</td>
<td>Topics: Canadian Conservatism</td>
</tr>
<tr>
<td>HIST 462D2</td>
<td>(3)</td>
<td>Topics: Canadian Conservatism</td>
</tr>
</tbody>
</table>
3.11.40  Philosophy (PHIL)

3.11.40.1 Location

Leacock Building, Room 908
855 Sherbrooke Street West
Montreal, Quebec H3A 2T7

Telephone: 514-398-6060
Fax: 514-398-7148
Email: info.philosophy@mcgill.ca
Website: www.mcgill.ca/philosophy

3.11.40.2 About Philosophy

Broadly speaking, the principal aim of philosophy is to increase our understanding of ourselves, the world, and our place in it. Philosophy differs from the empirical and social sciences in important respects. One way to characterize philosophy is by the sorts of questions it seeks to answer, and the ways in which it seeks to answer them. Different areas of philosophy are characterized by the questions they address. For example, Epistemology inquires into the nature of knowledge, Metaphysics is concerned with the fundamental nature of the world and of the types of things that it contains, Ethics investigates the nature of moral judgment and moral reasoning, while Political Philosophy examines such matters as justice, freedom, rights, democracy, and power, and Logic is broadly the analysis of the structure of correct reasoning. In addition, there are the various “Philosophies of...”, e.g., Philosophy of Science, Philosophy of Language, Philosophy of Mind, Philosophy of Religion.

Some of the courses in the Department are explicitly devoted to these specific areas of philosophy, each exploring one or several ways of construing and answering the questions it poses. Other courses explore some period or individual figure in the history of philosophy, approaching philosophical questions through the work of past thinkers, and often exploring connections between the different areas of philosophy.

The discipline of Philosophy, as a particular way of thinking, emphasizes clarity in expression, both written and oral, and rigour in argument. Philosophical questions are intriguing and hard, and so philosophical method stresses thoroughness and intellectual generosity – the willingness and ability to grasp another’s arguments and respond to them.

The Department requires that all students in the Honours and Joint Honours programs take a special 3-credit course (PHIL 301), the principal aim of which is to equip students with the distinctively philosophical skills required for advanced work in the field. The course is not available to students in the Major or Minor programs.

The B.A. in Philosophy is not a professional qualification. It prepares students for graduate work in philosophy and for study in other disciplines, e.g., Law. As the interdisciplinary discipline par excellence, philosophy also maintains and encourages ties with other fields, so many students will find that certain classes in philosophy are directly relevant to their major area of study. The Department has a strong commitment to providing an intensive yet broad-based philosophical education. The research interests of members of the Department are wide-ranging.

See also the separate listing for section 3.11.27: History and Philosophy of Science (HPSC).

Note: Philosophy students may use either PHIL 200 or PHIL 201 toward their program requirements, but not both. Students may, however, take both for credit (using the second as an elective), as the content in PHIL 201 does not overlap with PHIL 200.
# Philosophy (PHIL) Faculty

## Chair

Natalie Stoljar

## Emeritus Professors

Mario A. Bunge; Ph.D.(LaPlata), F.R.S.C. (*John Frothingham Emeritus Professor of Logic and Metaphysics*)  
Alastair McKinnon; M.A.(Tor.), Ph.D.(Edin.), B.D.(McG.), F.R.S.C., R.D., D.H.L.(St. Olaf) (*William Macdonald Emeritus Professor of Moral Philosophy*)  
David Norton; M.A.(Claremont), Ph.D.(Calif.), F.R.S.C (*William Macdonald Emeritus Professor of Moral Philosophy*)  
Charles Taylor; M.A., D.Phil.(Oxf.), F.R.S.C.

## Professors

George Di Giovanni; B.A., M.A., S.T.B., Ph.D.(Tor.)  
Storrs McCall; B.A.(McG.), B.Phil., D.Phil.(Oxf.)  
James McGilvray; B.A.(Carleton Coll.), Ph.D.(Yale)  
Calvin Normore; B.A.(McG.), M.A., Ph.D.(Tor.) (*William Macdonald Professor of Moral Philosophy*)

## Associate Professors

Alia Al-Saji; M.A.(Louvain), Ph.D.(Emory)  
R. Philip Buckley; Ph.D.(Louvain)  
Emily Carson; M.A.(McG.), Ph.D.(Harv.)  
David Davies; B.A.(Oxf.), M.A.(Manit.), Ph.D.(W. Ont.)  
Marguerite Deslauriers; B.A.(McG.), M.A., Ph.D.(Tor.)  
Gaëlle Fiasse; B.A., M.A., Ph.D.(Louvain) (*joint appt. with Faculty of Religious Studies*)  
Carlos Fraenkel; B.A., M.A., Ph.D.(Free Univ., Berlin) (*joint appt. with Jewish Studies*)  
Ian Gold; B.A., M.A.(McG.), Ph.D.(Princ.) (*joint appt. with Psychiatry*)  
Michael Hallett; B.Sc., Ph.D.(Lond.) (*John Frothingham Professor of Logic and Metaphysics*)  
Alison Laywine; B.A.(Ott.), M.A.(Montr.), Ph.D.(Chic.)  
Eric Lewis; B.A.(C'nell), Ph.D.(Ill.-Chic.)  
Stephen Menn; M.A., Ph.D.(Chic.), M.A., Ph.D.(Johns Hop.)  
Gregory Mikkelsen; M.S., Ph.D.(Chic.) (*joint appt. with McGill School of Environment*)  
Natalie Stoljar; B.A., LL.B.(Syd.), Ph.D.(Princ.) (*joint appt. with Social Studies of Medicine*)  
Sarah Stroud; A.B.(Harv.), Ph.D.(Princ.)

## Assistant Professors

Michael Blome-Tillmann; B.Phil., D.Phil.(Oxf.)  
Iwao Hirose; B.A., M.A.(Waseda), Ph.D.(St. And.) (*joint appt. with McGill School of Environment*)  
Andrew Reisner; B.A.(Middlebury), M.A.(Brist.), D.Phil.(Oxf.)  
Dirk Schlimm; M.Sc.(TU Darmstadt), M.Sc., Ph.D.(Carn. Mell)  
Hasana Sharp; A.B.(Occidental), M.A.(Binghampton), Ph.D.(Penn.)

## Faculty Lecturer

William Roberts; Ph.D.(Penn. St.) (*joint appt. with Political Science*)
Adjunct Professors

Steven Davis; (Car.)
Susan-Judith Hoffmann; (Dawson)
Iain Macdonald; (Montr.)

Auxiliary Professor


Associate Members

Arash Abizadeh (Political Science)
Brendan Gillon (Linguistics)
Lawrence Kaplan (Jewish Studies)
Jacob T. Levy (Political Science)
Robert Wisnovsky (Islamic Studies)

Bachelor of Arts (B.A.) - Minor Concentration Philosophy (18 credits)

Complementary Courses (18 credits)

18 credits, of which no more than 9 credits may be at the 200 level and at least 3 credits must be at the 400 or 500 level, distributed as follows:
15 credits from Groups A, B, C, D, and E with one course from at least four of the five groups.
3 additional credits from Groups A, B, C, D, and E or from other Philosophy (PHIL) courses.

Group A

PHIL 230  (3)  Introduction to Moral Philosophy 1
PHIL 237  (3)  Contemporary Moral Issues
PHIL 242  (3)  Introduction to Feminist Theory
PHIL 334  (3)  Ethical Theory
PHIL 343  (3)  Biomedical Ethics
PHIL 348  (3)  Philosophy of Law 1
PHIL 434  (3)  Ethics 2
PHIL 442  (3)  Topics in Feminist Theory

Group B

PHIL 210  (3)  Introduction to Deductive Logic 1
PHIL 220  (3)  Introduction to History and Philosophy of Science 1
PHIL 221  (3)  Introduction to History and Philosophy of Science 2
PHIL 304  (3)  Chomsky
PHIL 306  (3)  Philosophy of Mind
PHIL 310  (3)  Intermediate Logic
PHIL 341  (3)  Philosophy of Science 1
PHIL 370  (3)  Problems in Analytic Philosophy
PHIL 410  (3)  Advanced Topics in Logic 1
PHIL 411  (3)  Topics in Philosophy of Logic and Mathematics
PHIL 415  (3)  Philosophy of Language
<table>
<thead>
<tr>
<th>Course</th>
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<td>PHIL 421</td>
<td>(3)</td>
<td>Metaphysics</td>
</tr>
<tr>
<td>PHIL 441</td>
<td>(3)</td>
<td>Philosophy of Science 2</td>
</tr>
<tr>
<td>PHIL 470</td>
<td>(3)</td>
<td>Topics in Contemporary Analytic Philosophy</td>
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</table>

**Group C**

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<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>PHIL 375</td>
<td>(3)</td>
<td>Existentialism</td>
</tr>
<tr>
<td>PHIL 474</td>
<td>(3)</td>
<td>Phenomenology</td>
</tr>
<tr>
<td>PHIL 475</td>
<td>(3)</td>
<td>Topics in Contemporary European Philosophy</td>
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**Group D**

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<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>PHIL 344</td>
<td>(3)</td>
<td>Medieval and Renaissance Political Theory</td>
</tr>
<tr>
<td>PHIL 345</td>
<td>(3)</td>
<td>Greek Political Theory</td>
</tr>
<tr>
<td>PHIL 350</td>
<td>(3)</td>
<td>History and Philosophy of Ancient Science</td>
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<tr>
<td>PHIL 353</td>
<td>(3)</td>
<td>The Presocratic Philosophers</td>
</tr>
<tr>
<td>PHIL 354</td>
<td>(3)</td>
<td>Plato</td>
</tr>
<tr>
<td>PHIL 355</td>
<td>(3)</td>
<td>Aristotle</td>
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<tr>
<td>PHIL 356</td>
<td>(3)</td>
<td>Early Medieval Philosophy</td>
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<td>PHIL 357</td>
<td>(3)</td>
<td>Late Medieval and Renaissance Philosophy</td>
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<tr>
<td>PHIL 452</td>
<td>(3)</td>
<td>Later Greek Philosophy</td>
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<tr>
<td>PHIL 453</td>
<td>(3)</td>
<td>Ancient Metaphysics and Natural Philosophy</td>
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<tr>
<td>PHIL 454</td>
<td>(3)</td>
<td>Ancient Moral Theory</td>
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**Group E**

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<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
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<tbody>
<tr>
<td>PHIL 360</td>
<td>(3)</td>
<td>17th Century Philosophy</td>
</tr>
<tr>
<td>PHIL 361</td>
<td>(3)</td>
<td>18th Century Philosophy</td>
</tr>
<tr>
<td>PHIL 366</td>
<td>(3)</td>
<td>18th and Early 19th Century German Philosophy</td>
</tr>
<tr>
<td>PHIL 367</td>
<td>(3)</td>
<td>19th Century Philosophy</td>
</tr>
<tr>
<td>PHIL 444</td>
<td>(3)</td>
<td>Early Modern Political Theory</td>
</tr>
<tr>
<td>PHIL 445</td>
<td>(3)</td>
<td>19th Century Political Theory</td>
</tr>
</tbody>
</table>

**3.11.40.5 Bachelor of Arts (B.A.) - Major Concentration Philosophy (36 credits)**

**Required Course (3 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>PHIL 210</td>
<td>(3)</td>
<td>Introduction to Deductive Logic 1</td>
</tr>
</tbody>
</table>

**Complementary Courses (33 credits)**

33 credits, of which no more than 9 may be at the 200 level and at least 9 must be at the 400 or 500 level, distributed as follows:

- 18 credits from Groups A, B, C, D, E, and F:
- 3 credits from Group A
- 3 credits from Group B
- 6 credits, two courses from either Group C or Group D
- 3 credits from Group E
3 credits from Group F
15 additional credits from Groups A, B, C, D, E or F or from other Philosophy (PHIL) courses. Only one of PHIL 200 or PHIL 201 may be included in the program.

Group A
3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 304</td>
<td>Chomsky</td>
</tr>
<tr>
<td>PHIL 306</td>
<td>Philosophy of Mind</td>
</tr>
<tr>
<td>PHIL 310</td>
<td>Intermediate Logic</td>
</tr>
<tr>
<td>PHIL 341</td>
<td>Philosophy of Science 1</td>
</tr>
<tr>
<td>PHIL 370</td>
<td>Problems in Analytic Philosophy</td>
</tr>
<tr>
<td>PHIL 410</td>
<td>Advanced Topics in Logic 1</td>
</tr>
<tr>
<td>PHIL 411</td>
<td>Topics in Philosophy of Logic and Mathematics</td>
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<tr>
<td>PHIL 415</td>
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<tr>
<td>PHIL 419</td>
<td>Epistemology</td>
</tr>
<tr>
<td>PHIL 421</td>
<td>Metaphysics</td>
</tr>
<tr>
<td>PHIL 441</td>
<td>Philosophy of Science 2</td>
</tr>
<tr>
<td>PHIL 470</td>
<td>Topics in Contemporary Analytic Philosophy</td>
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Group B
3 credits from:

<table>
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<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>PHIL 375</td>
<td>Existentialism</td>
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<tr>
<td>PHIL 474</td>
<td>Phenomenology</td>
</tr>
<tr>
<td>PHIL 475</td>
<td>Topics in Contemporary European Philosophy</td>
</tr>
</tbody>
</table>

Group C
6 credits (two courses) from Group C OR Group D:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>PHIL 344</td>
<td>Medieval and Renaissance Political Theory</td>
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<td>PHIL 345</td>
<td>Greek Political Theory</td>
</tr>
<tr>
<td>PHIL 350</td>
<td>History and Philosophy of Ancient Science</td>
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<tr>
<td>PHIL 353</td>
<td>The Presocratic Philosophers</td>
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<tr>
<td>PHIL 354</td>
<td>Plato</td>
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<tr>
<td>PHIL 355</td>
<td>Aristotle</td>
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<tr>
<td>PHIL 356</td>
<td>Early Medieval Philosophy</td>
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</tr>
<tr>
<td>PHIL 452</td>
<td>Later Greek Philosophy</td>
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<tr>
<td>PHIL 453</td>
<td>Ancient Metaphysics and Natural Philosophy</td>
</tr>
<tr>
<td>PHIL 454</td>
<td>Ancient Moral Theory</td>
</tr>
</tbody>
</table>

Group D
6 credits (two courses) from Group C OR Group D:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>PHIL 360</td>
<td>17th Century Philosophy</td>
</tr>
<tr>
<td>PHIL 361</td>
<td>18th Century Philosophy</td>
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</tbody>
</table>
PHIL 366 (3) 18th and Early 19th Century German Philosophy
PHIL 367 (3) 19th Century Philosophy
PHIL 444 (3) Early Modern Political Theory
PHIL 445 (3) 19th Century Political Theory

**Group E**

3 credits from:

- PHIL 230 (3) Introduction to Moral Philosophy 1
- PHIL 237 (3) Contemporary Moral Issues
- PHIL 242 (3) Introduction to Feminist Theory

**Group F**

3 credits from:

- PHIL 334 (3) Ethical Theory
- PHIL 343 (3) Biomedical Ethics
- PHIL 348 (3) Philosophy of Law 1
- PHIL 434 (3) Ethics 2
- PHIL 442 (3) Topics in Feminist Theory

### 3.11.40.6 Bachelor of Arts (B.A.) - Honours Philosophy (60 credits)

According to Faculty regulations, Honours students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.00.

Admission to Honours: Students must attain a 3.00 CGPA and have a 3.00 GPA in Philosophy courses.

**Required Courses (15 credits)**

- PHIL 210 (3) Introduction to Deductive Logic 1
- PHIL 301 (3) Philosophical Fundamentals
- PHIL 334 (3) Ethical Theory
- PHIL 499 (6) Tutorial 06

**Complementary Courses (45 credits)**

45 credits distributed as follows:

3 credits from:

- PHIL 306 (3) Philosophy of Mind
- PHIL 310 (3) Intermediate Logic
- PHIL 370 (3) Problems in Analytic Philosophy
- PHIL 410 (3) Advanced Topics in Logic 1
- PHIL 411 (3) Topics in Philosophy of Logic and Mathematics
- PHIL 415 (3) Philosophy of Language
- PHIL 419 (3) Epistemology
- PHIL 421 (3) Metaphysics
- PHIL 470 (3) Topics in Contemporary Analytic Philosophy
3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>PHIL 230</td>
<td>(3)</td>
<td>Introduction to Moral Philosophy 1</td>
</tr>
<tr>
<td>PHIL 237</td>
<td>(3)</td>
<td>Contemporary Moral Issues</td>
</tr>
<tr>
<td>PHIL 240</td>
<td>(3)</td>
<td>Political Philosophy 1</td>
</tr>
<tr>
<td>PHIL 241</td>
<td>(3)</td>
<td>Political Philosophy 2</td>
</tr>
<tr>
<td>PHIL 242</td>
<td>(3)</td>
<td>Introduction to Feminist Theory</td>
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6 credits from:

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<tr>
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</thead>
<tbody>
<tr>
<td>PHIL 345</td>
<td>(3)</td>
<td>Greek Political Theory</td>
</tr>
<tr>
<td>PHIL 350</td>
<td>(3)</td>
<td>History and Philosophy of Ancient Science</td>
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<tr>
<td>PHIL 353</td>
<td>(3)</td>
<td>The Presocratic Philosophers</td>
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<tr>
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<td>(3)</td>
<td>Plato</td>
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<td>PHIL 355</td>
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<td>Aristotle</td>
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<td>PHIL 452</td>
<td>(3)</td>
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6 credits from:

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<tbody>
<tr>
<td>PHIL 360</td>
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<td>PHIL 474</td>
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<td>Phenomenology</td>
</tr>
<tr>
<td>PHIL 475</td>
<td>(3)</td>
<td>Topics in Contemporary European Philosophy</td>
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</tbody>
</table>

24 additional credits in Philosophy (PHIL) with 12 credits at the 400 and 500 levels (not including the Honours tutorial PHIL 499) at least 3 credits of which must be at the 500 level.

A maximum of 15 credits from 200-level courses may be used toward the Honours program. Only one of PHIL 200 or PHIL 201 may be counted toward the program.

**3.11.40.7 Bachelor of Arts (B.A.) - Joint Honours Component Philosophy (36 credits)**

Students who wish to study at the Honours level in two Arts disciplines may apply to combine Joint Honours program components from two Arts disciplines. For a list of available Joint Honours programs, see “Overview of Programs Offered” and “Joint Honours Programs”.

Prior to registering for each Joint Honours component, students should consult an adviser in each department for approval of their course selection and their interdisciplinary research project (if applicable).

According to Faculty regulations, Joint Honours students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.00.

Admission to JointHonours: Students must attain a 3.00 CGPA and have a 3.00 GPA in Philosophy courses.
**Required Courses (9 credits)**

- PHIL 210 (3) Introduction to Deductive Logic 1
- PHIL 301 (3) Philosophical Fundamentals
- PHIL 334 (3) Ethical Theory

**Complementary Courses (27 credits)**

27 credits distributed as follows:

3 credits from:

- PHIL 306 (3) Philosophy of Mind
- PHIL 310 (3) Intermediate Logic
- PHIL 370 (3) Problems in Analytic Philosophy
- PHIL 410 (3) Advanced Topics in Logic 1
- PHIL 411 (3) Topics in Philosophy of Logic and Mathematics
- PHIL 415 (3) Philosophy of Language
- PHIL 419 (3) Epistemology
- PHIL 421 (3) Metaphysics
- PHIL 470 (3) Topics in Contemporary Analytic Philosophy

3 credits from:

- PHIL 230 (3) Introduction to Moral Philosophy 1
- PHIL 237 (3) Contemporary Moral Issues
- PHIL 240 (3) Political Philosophy 1
- PHIL 241 (3) Political Philosophy 2
- PHIL 242 (3) Introduction to Feminist Theory

**Group A**

6 credits from Group A or Group B.

- PHIL 345 (3) Greek Political Theory
- PHIL 350 (3) History and Philosophy of Ancient Science
- PHIL 353 (3) The Presocratic Philosophers
- PHIL 354 (3) Plato
- PHIL 355 (3) Aristotle
- PHIL 452 (3) Later Greek Philosophy
- PHIL 453 (3) Ancient Metaphysics and Natural Philosophy
- PHIL 454 (3) Ancient Moral Theory

**Group B**

6 credits from Group A or Group B.

- PHIL 360 (3) 17th Century Philosophy
- PHIL 361 (3) 18th Century Philosophy
PHIL 366 (3) 18th and Early 19th Century German Philosophy
PHIL 367 (3) 19th Century Philosophy
PHIL 444 (3) Early Modern Political Theory
PHIL 445 (3) 19th Century Political Theory

3 credits from:
PHIL 375 (3) Existentialism
PHIL 474 (3) Phenomenology
PHIL 475 (3) Topics in Contemporary European Philosophy

9 credits of Philosophy (PHIL) at the 400 and 500 level (not including the Joint Honours tutorial), at least 3 credits of which must be at the 500 level.

Joint Honours Tutorial with Thesis
3 credits of Joint Honours tutorial with thesis, which can take either of two forms: a 6-credit interdisciplinary thesis, or a 3-credit thesis in Philosophy, i.e., PHIL 498 below.

PHIL 498 (3) Tutorial 05

3.11.40.8 Philosophy (PHIL) Related Programs
3.11.40.8.1 Minor in Cognitive Science
Students following Major or Honours programs in Philosophy with an interest in cognition may consider the Minor in Cognitive Science. For more information, see Faculty of Science > Cognitive Science.

3.11.41 Philosophy and Western Religions (PHWR)

3.11.41.1 Location
Interdisciplinary Programs Office, Faculty of Arts
Dawson Hall, Room 112B
853 Sherbrooke Street West
Montreal, Quebec H3A 2T6
Telephone: 514-398-4400 ext. 09557
Fax: 514-398-7185
Email: interdisciplinary.arts@mcgill.ca
Website: www.mcgill.ca/phwr
Adviser: Karin Bourgeois

3.11.41.2 About Philosophy and Western Religions
All programs in Philosophy and Western Religions (Minor Concentration, Major Concentration, Honours, and Joint Honours) are not available for the 2011-2012 academic year.

This interdisciplinary program, in which the Department of Philosophy, the Institute of Islamic Studies, the Department of Jewish Studies, and the Faculty of Religious Studies collaborate, was designed for students who wish to study the encounter between philosophy and the three Abrahamic religions (Judaism, Christianity, and Islam), an encounter which shaped the basic patterns of Western and Muslim intellectual history. The program covers the period from Antiquity to the Enlightenment during which philosophy and religious thought were inseparably interwoven, making visible the wide range of links between the intellectual worlds of these three religious traditions. Although the interaction between philosophy and religious thought continued in a variety of forms also after the Enlightenment’s critique of religion, this critique transformed their relationship in a fundamental way, and for this reason will be used to delimit the chronological scope of the program. During the period in question, the impact of Greek philosophy on theologians, philosophers, and mystics within Judaism, Christianity, and Islam determined often in a decisive way – both positively and negatively – the interpretation of their Holy Scriptures, and their understanding of crucial religious concepts such as God, creation, revelation, providence, divine Law, and the origin of evil. The interdisciplinary approach takes into account that the history of the encounter in question crossed the linguistic, cultural, and religious boundaries which define the areas of the traditional academic disciplines. This approach permits the student to pursue the development of a philosophical or religious concept from its origin through the different historical and geographical contexts in which it was received by Jewish, Christian, and Muslim thinkers.
In order to achieve its goal, the program focuses on (i) the acquisition of relevant languages (Greek, Latin, Arabic, Hebrew), (ii) the history of Ancient, Medieval, and Early Modern Philosophy, (iii) the Holy Scriptures and the history of Judaism, Christianity, and Islam, (iv) the reception and transformation of philosophical ideas in Jewish, Christian, and Islamic thought, and (v) the multiple points of contact among the different traditions of religious thought.

The program provides excellent preparation for graduate studies in Philosophy (with the appropriate choice of electives, or in combination with a Minor in Philosophy), in Religious Studies and, with the relevant language component, in Islamic Studies and Jewish Studies as well. Students wishing to pursue graduate studies in a particular discipline should consult about specific requirements with a faculty member of the corresponding department at McGill.

3.11.41.3 Philosophy and Western Religions (PHWR) Faculty

Program Committee Chair
Carlos Fraenkel (Philosophy and Jewish Studies)

Program Committee
E. Caplan (Jewish Studies)
M. Deslauriers (Philosophy)
D. Farrow (Religious Studies)
I. Henderson (Religious Studies)
T. Kirby (Religious Studies)
B. Levy (Religious Studies)
S. Menn (Philosophy)
G. Oegema (Religious Studies)
C. Potworowski (Philosophy)
R. Wisnovsky (Islamic Studies)

3.11.41.4 Bachelor of Arts (B.A.) - Minor Concentration Philosophy and Western Religions (18 credits)

NOTE: THE MINOR CONCENTRATION IN PHILOSOPHY AND WESTERN RELIGIONS IS NOT AVAILABLE FOR THE 2011-2012 ACADEMIC YEAR.

Students will benefit most from this Minor concentration if they combine it with programs in Philosophy, Islamic Studies, Jewish Studies, Religious Studies, or Classics. Students are also encouraged to complete a minor concentration in one of the languages relevant to the academic field.

Required Course (3 credits)
RELG 307 (3) Bible, Quran & Interpretations

Complementary Courses (15 credits)

15 credits selected as follows:
Students must complete 6 credits from the course lists for any two of the three categories below and 3 credits from the course list for the remaining category:

Philosophy and Western Religions
History of Philosophy
Jewish, Christian, and Islamic Thought

Philosophy and Western Religions
3-6 credits from:
Note: Students are strongly encouraged to take both PHWR 300 and PHWR 301.

PHWR 300 (3) Philosophy & Western Religions 1
PHWR 301 (3) Philosophy & Western Religions 2

History of Philosophy
3-6 credits, at least one of the following:
Students completing 6 credits in the History of Philosophy category, may select 3 credits from the following:

- CLAS 415 (3) Advanced Latin: Oratory
- CLAS 426 (3) Advanced Greek: Philosophy
- PHIL 356 (3) Early Medieval Philosophy
- PHIL 357 (3) Late Medieval and Renaissance Philosophy
- PHIL 360 (3) 17th Century Philosophy
- PHIL 452 (3) Later Greek Philosophy

**Jewish, Christian, and Islamic Thought**

3-6 credits from:

- ISLA 531D1 (3) Survey Development of Islamic Thought
- ISLA 531D2 (3) Survey Development of Islamic Thought
- JWST 261 (3) History of Jewish Philosophy & Thought
- JWST 337 (3) Jewish Philosophy and Thought 1
- JWST 338 (3) Jewish Philosophy and Thought 2
- JWST 358 (3) Topics in Jewish Philosophy 1
- JWST 359 (3) Topics in Jewish Philosophy 2
- JWST 474 (3) Maimonides’ Mishneh Torah
- JWST 543 (3) Maimonides as Parshan
- JWST 562 (3) Medieval Islamic and Jewish Philosophy
- RELG 334 (3) Christian Thought and Culture
- RELG 341 (3) Introduction: Philosophy of Religion
- RELG 423 (3) Reformation Thought
- RELG 439 (3) Religious Dialogues
- RELG 532 (3) History of Christian Thought 1
- RELG 533 (3) History of Christian Thought 2

**3.11.41.5 Bachelor of Arts (B.A.) - Major Concentration Philosophy and Western Religions (36 credits)**

ARGUE NOTE: THE MAJOR CONCENTRATION IN PHILOSOPHY AND WESTERN RELIGIONS IS NOT AVAILABLE FOR THE 2011-2012 ACADEMIC YEAR.

The Major Concentration Philosophy and Western Religions has an option without a language requirement (Stream A), and one with a language requirement (Stream B). The latter was designed for students who wish to acquire the linguistic skills allowing them to read and research source texts in the original languages. Students will benefit most from the Major concentration if they combine it with a program in Philosophy, Islamic Studies, Jewish Studies, Religious Studies, or Classics. Students are also encouraged to complete a minor concentration in one of the languages relevant to the academic field.

Students are strongly encouraged to consult an adviser each year to devise a suitable course combination.

**Required Course (3 credits)**

- RELG 307 (3) Bible, Quran & Interpretations

**Complementary Courses (33 credits)**

33 credits selected as follows:
24-30 credits from Stream A (without a language requirement) or Stream B (with a language requirement) as specified under "Stream Requirements" and

3-9 credits of Philosophy and Western Religions (PHWR) courses from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>PHWR 300</td>
<td>3</td>
<td>Philosophy &amp; Western Religions 1</td>
</tr>
<tr>
<td>PHWR 301</td>
<td>3</td>
<td>Philosophy &amp; Western Religions 2</td>
</tr>
<tr>
<td>PHWR 500D1</td>
<td>1.5</td>
<td>Interdisciplinary Seminar</td>
</tr>
<tr>
<td>PHWR 500D2</td>
<td>1.5</td>
<td>Interdisciplinary Seminar</td>
</tr>
</tbody>
</table>

Students are strongly encouraged to take both PHWR 300 and PHWR 301.

**Stream Requirements**

Stream A: 24-30 credits selected as follows:

9-12 credits from the History of Philosophy course list.

3-6 credits from the Scriptures and History of Western Religious Traditions course list.

9-12 credits from the Jewish, Christian, and Islamic Thought course list.

Stream B: 24-30 credits selected as follows:

6-9 credits from the History of Philosophy course list.

0-3 credits from the Scriptures and History of Western Religious Traditions course list.

6-9 credits from the Jewish, Christian, and Islamic Thought course list.

12-15 credits from the Languages (Arabic, Greek, Hebrew, or Latin) course list.

**Stream A and B - History of Philosophy**

Stream A: Students take 9-12 credits from the History of Philosophy course list below.

Stream B: Students take 6-9 credits from the History of Philosophy course list below.

At least one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>PHIL 354</td>
<td>3</td>
<td>Plato</td>
</tr>
<tr>
<td>PHIL 355</td>
<td>3</td>
<td>Aristotle</td>
</tr>
</tbody>
</table>

At least one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 356</td>
<td>3</td>
<td>Early Medieval Philosophy</td>
</tr>
<tr>
<td>PHIL 357</td>
<td>3</td>
<td>Late Medieval and Renaissance Philosophy</td>
</tr>
</tbody>
</table>

Remaining credits, if any, from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>CLAS 415</td>
<td>3</td>
<td>Advanced Latin: Oratory</td>
</tr>
<tr>
<td>CLAS 426</td>
<td>3</td>
<td>Advanced Greek: Philosophy</td>
</tr>
<tr>
<td>PHIL 345</td>
<td>3</td>
<td>Greek Political Theory</td>
</tr>
<tr>
<td>PHIL 350</td>
<td>3</td>
<td>History and Philosophy of Ancient Science</td>
</tr>
<tr>
<td>PHIL 353</td>
<td>3</td>
<td>The Presocratic Philosophers</td>
</tr>
<tr>
<td>PHIL 452</td>
<td>3</td>
<td>Later Greek Philosophy</td>
</tr>
<tr>
<td>PHIL 453</td>
<td>3</td>
<td>Ancient Metaphysics and Natural Philosophy</td>
</tr>
<tr>
<td>PHIL 454</td>
<td>3</td>
<td>Ancient Moral Theory</td>
</tr>
<tr>
<td>PHIL 551</td>
<td>3</td>
<td>Seminar: Ancient Philosophy 2</td>
</tr>
<tr>
<td>PHIL 556</td>
<td>3</td>
<td>Seminar: Medieval Philosophy</td>
</tr>
<tr>
<td>PHIL 560</td>
<td>3</td>
<td>Seminar: 17th Century Philosophy</td>
</tr>
</tbody>
</table>
## Stream A and B - Scriptures and History of the Western Religious Traditions

Stream A: Students take 3-6 credits from the Scriptures and History of the Western Religious Traditions course list below.

Stream B: Students take 0-3 credits from the Scriptures and History of the Western Religious Traditions course list below.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>CATH 200</td>
<td>(3)</td>
<td>Introduction to Catholicism</td>
</tr>
<tr>
<td>CATH 310</td>
<td>(3)</td>
<td>Catholic Intellectual Traditions</td>
</tr>
<tr>
<td>CATH 320</td>
<td>(3)</td>
<td>Scripture and Catholicism</td>
</tr>
<tr>
<td>HIST 207</td>
<td>(3)</td>
<td>Jewish History: 400 B.C.E. to 1000</td>
</tr>
<tr>
<td>HIST 219</td>
<td>(3)</td>
<td>Jewish History: 1000 - 2000</td>
</tr>
<tr>
<td>ISLA 505</td>
<td>(3)</td>
<td>Islam: Origin and Early Development</td>
</tr>
<tr>
<td>ISLA 506</td>
<td>(3)</td>
<td>Islam: Later Developments</td>
</tr>
<tr>
<td>ISLA 510D1</td>
<td>(3)</td>
<td>History: Islamic Civilization - Classical</td>
</tr>
<tr>
<td>ISLA 510D2</td>
<td>(3)</td>
<td>History: Islamic Civilization - Classical</td>
</tr>
<tr>
<td>ISLA 511D1</td>
<td>(3)</td>
<td>History: Islamic Civilization - Mediaeval Era</td>
</tr>
<tr>
<td>ISLA 511D2</td>
<td>(3)</td>
<td>History: Islamic Civilization - Mediaeval Era</td>
</tr>
<tr>
<td>JWST 201</td>
<td>(3)</td>
<td>Jewish Law</td>
</tr>
<tr>
<td>JWST 211</td>
<td>(3)</td>
<td>Jewish Studies 1: Biblical Period</td>
</tr>
<tr>
<td>JWST 216</td>
<td>(3)</td>
<td>Jewish Studies 2: 400 B.C.E. - 1000</td>
</tr>
<tr>
<td>JWST 217</td>
<td>(3)</td>
<td>Jewish Studies 3: 1000 - 2000</td>
</tr>
<tr>
<td>JWST 310</td>
<td>(3)</td>
<td>Believers, Heretics and Critics</td>
</tr>
<tr>
<td>JWST 316</td>
<td>(3)</td>
<td>Social and Ethical Issues Jewish Law 1</td>
</tr>
<tr>
<td>JWST 331</td>
<td>(3)</td>
<td>Bible Interpretation/Medieval Ashkenaz</td>
</tr>
<tr>
<td>JWST 332</td>
<td>(3)</td>
<td>Bible Interpretation/Sefardic Tradition</td>
</tr>
<tr>
<td>JWST 345</td>
<td>(3)</td>
<td>Introduction to Rabbinic Literature</td>
</tr>
<tr>
<td>JWST 510</td>
<td>(3)</td>
<td>Jewish Bible Interpretation 1</td>
</tr>
<tr>
<td>JWST 511</td>
<td>(3)</td>
<td>Jewish Bible Interpretation 2</td>
</tr>
<tr>
<td>JWST 523</td>
<td>(3)</td>
<td>Ancient Bible Interpretation</td>
</tr>
<tr>
<td>JWST 534</td>
<td>(3)</td>
<td>Homiletic Midrash</td>
</tr>
<tr>
<td>JWST 535</td>
<td>(3)</td>
<td>Exegetic Midrash</td>
</tr>
<tr>
<td>JWST 538</td>
<td>(3)</td>
<td>Early Rabbinic Parshanut 1</td>
</tr>
<tr>
<td>JWST 539</td>
<td>(3)</td>
<td>Biblical Interpretation 1</td>
</tr>
<tr>
<td>JWST 540</td>
<td>(3)</td>
<td>Biblical Interpretation 2</td>
</tr>
<tr>
<td>JWST 546</td>
<td>(3)</td>
<td>Innovative Medieval Parshanut</td>
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<tr>
<td>JWST 548</td>
<td>(3)</td>
<td>Medieval Parshanut</td>
</tr>
<tr>
<td>JWST 575</td>
<td>(3)</td>
<td>Topics in Parshanut</td>
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<tr>
<td>RELG 203</td>
<td>(3)</td>
<td>Bible and Western Culture</td>
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<tr>
<td>RELG 210</td>
<td>(3)</td>
<td>Jesus of Nazareth</td>
</tr>
<tr>
<td>RELG 300</td>
<td>(3)</td>
<td>Second Temple Judaism</td>
</tr>
<tr>
<td>RELG 302</td>
<td>(3)</td>
<td>Literature of Ancient Israel 1</td>
</tr>
<tr>
<td>RELG 303</td>
<td>(3)</td>
<td>Literature of Ancient Israel 2</td>
</tr>
<tr>
<td>RELG 306</td>
<td>(3)</td>
<td>Rabbinic Judaism</td>
</tr>
<tr>
<td>RELG 311</td>
<td>(3)</td>
<td>New Testament Studies 1</td>
</tr>
<tr>
<td>RELG 312</td>
<td>(3)</td>
<td>New Testament Studies 2</td>
</tr>
</tbody>
</table>
RELG 322 (3) The Church in History 1
RELG 323 (3) The Church in History 2
RELG 326 (3) Ancient Christian Church AD54 - AD604
RELG 330 (3) Reformed Theology
RELG 399 (3) Christian Spirituality
RELG 404 (3) Post Exilic Biblical Literature
RELG 407 (3) The Writings
RELG 408 (3) The Prophets
RELG 411 (3) New Testament Exegesis
RELG 482 (3) Exegesis of Greek New Testament
RELG 491 (3) Hebrew Texts
RELG 492 (3) Hebrew Texts
RELG 500 (3) Methodology Colloquium

Stream A and B - Jewish, Christian, and Islamic Thought

Stream A: Students take 9-12 credits from the Jewish, Christian, and Islamic Thought course list below with a maximum of 6 credits selected from any one group.
Stream B: Students take 6-9 credits from the Jewish, Christian, and Islamic Thought course list below with a maximum of 6 credits selected from any one group.

Group 1 - Islamic Studies (ISLA)

ISLA 531D1 (3) Survey Development of Islamic Thought
ISLA 531D2 (3) Survey Development of Islamic Thought

Group 2 - Jewish Studies (JWST)

JWST 261 (3) History of Jewish Philosophy & Thought
JWST 337 (3) Jewish Philosophy and Thought 1
JWST 338 (3) Jewish Philosophy and Thought 2
JWST 358 (3) Topics in Jewish Philosophy 1
JWST 359 (3) Topics in Jewish Philosophy 2
JWST 474 (3) Maimonides’ Mishneh Torah
JWST 543 (3) Maimonides as Parshan
JWST 558 (3) Topics: Modern Jewish Thought
JWST 562 (3) Medieval Islamic and Jewish Philosophy

Group 3 - Religious Studies (RELG)

RELG 334 (3) Christian Thought and Culture
RELG 341 (3) Introduction: Philosophy of Religion
RELG 423 (3) Reformation Thought
RELG 439 (3) Religious Dialogues
RELG 532 (3) History of Christian Thought 1
RELG 533 (3) History of Christian Thought 2
Stream B - Languages
Stream B (only): Students take 12-15 credits (two years: 12 credits, or in the case of Arabic, 15 credits) in one language (Arabic, Greek, Hebrew, or Latin) from the list below.

**Arabic, ISLA courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISLA 521D1</td>
<td>4.5</td>
<td>ISLA 521D1</td>
<td>Introductory Arabic</td>
</tr>
<tr>
<td>ISLA 521D2</td>
<td>4.5</td>
<td>ISLA 521D2</td>
<td>Introductory Arabic</td>
</tr>
<tr>
<td>ISLA 522D1</td>
<td>3</td>
<td>ISLA 522D1</td>
<td>Lower Intermediate Arabic</td>
</tr>
<tr>
<td>ISLA 522D2</td>
<td>3</td>
<td>ISLA 522D2</td>
<td>Lower Intermediate Arabic</td>
</tr>
</tbody>
</table>

**Greek, CLAS and RELG courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLAS 220D1</td>
<td>3</td>
<td>CLAS 220D1</td>
<td>Introductory Ancient Greek</td>
</tr>
<tr>
<td>CLAS 220D2</td>
<td>3</td>
<td>CLAS 220D2</td>
<td>Introductory Ancient Greek</td>
</tr>
<tr>
<td>CLAS 321</td>
<td>3</td>
<td>CLAS 321</td>
<td>Intermediate Greek: Plato/Xenophon</td>
</tr>
<tr>
<td>CLAS 322</td>
<td>3</td>
<td>CLAS 322</td>
<td>Intermediate Greek: Orators</td>
</tr>
<tr>
<td>CLAS 323</td>
<td>3</td>
<td>CLAS 323</td>
<td>Intermediate Greek: Homer</td>
</tr>
<tr>
<td>CLAS 324</td>
<td>3</td>
<td>CLAS 324</td>
<td>Intermediate Greek: Poetry</td>
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<td>CLAS 325</td>
<td>3</td>
<td>CLAS 325</td>
<td>Intermediate Greek: Later Prose</td>
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<tr>
<td>CLAS 326</td>
<td>3</td>
<td>CLAS 326</td>
<td>Intermediate Greek: Selections</td>
</tr>
<tr>
<td>RELG 280D1</td>
<td>3</td>
<td>RELG 280D1</td>
<td>Elementary New Testament Greek</td>
</tr>
<tr>
<td>RELG 280D2</td>
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<td>RELG 280D2</td>
<td>Elementary New Testament Greek</td>
</tr>
<tr>
<td>RELG 381</td>
<td>3</td>
<td>RELG 381</td>
<td>Advanced New Testament Greek</td>
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</table>

**Hebrew, JWST and RELG courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>JWST 200</td>
<td>12</td>
<td>JWST 200</td>
<td>Hebrew Language (Intensive)</td>
</tr>
<tr>
<td>JWST 220D1</td>
<td>3</td>
<td>JWST 220D1</td>
<td>Introductory Hebrew</td>
</tr>
<tr>
<td>JWST 220D2</td>
<td>3</td>
<td>JWST 220D2</td>
<td>Introductory Hebrew</td>
</tr>
<tr>
<td>JWST 320D1</td>
<td>3</td>
<td>JWST 320D1</td>
<td>Intermediate Hebrew</td>
</tr>
<tr>
<td>JWST 320D2</td>
<td>3</td>
<td>JWST 320D2</td>
<td>Intermediate Hebrew</td>
</tr>
<tr>
<td>RELG 390D1</td>
<td>3</td>
<td>RELG 390D1</td>
<td>Elementary Biblical Hebrew</td>
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<tr>
<td>RELG 390D2</td>
<td>3</td>
<td>RELG 390D2</td>
<td>Elementary Biblical Hebrew</td>
</tr>
</tbody>
</table>

**Latin, CLAS courses:**

<table>
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<th>Credits</th>
<th>Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>CLAS 210D1</td>
<td>3</td>
<td>CLAS 210D1</td>
<td>Introductory Latin 1</td>
</tr>
<tr>
<td>CLAS 210D2</td>
<td>3</td>
<td>CLAS 210D2</td>
<td>Introductory Latin 1</td>
</tr>
<tr>
<td>CLAS 311</td>
<td>3</td>
<td>CLAS 311</td>
<td>Catullus/Ovid</td>
</tr>
<tr>
<td>CLAS 312</td>
<td>3</td>
<td>CLAS 312</td>
<td>Intermediate Latin: Poetry</td>
</tr>
<tr>
<td>CLAS 313</td>
<td>3</td>
<td>CLAS 313</td>
<td>Intermediate Latin: Cicero</td>
</tr>
<tr>
<td>CLAS 314</td>
<td>3</td>
<td>CLAS 314</td>
<td>Intermediate Latin: Historians</td>
</tr>
<tr>
<td>CLAS 315</td>
<td>3</td>
<td>CLAS 315</td>
<td>Intermediate Latin: Selections</td>
</tr>
<tr>
<td>CLAS 316</td>
<td>3</td>
<td>CLAS 316</td>
<td>Intermediate Latin: Medieval</td>
</tr>
</tbody>
</table>
Bachelor of Arts (B.A.) - Honours Philosophy and Western Religions (60 credits)

NOTE: THE HONOURS IN PHILOSOPHY AND WESTERN RELIGIONS IS NOT AVAILABLE FOR THE 2011-2012 ACADEMIC YEAR.

The Honours Philosophy and Western Religions program was designed for students who wish (i) to explore in depth the intertwined intellectual worlds of Judaism, Christianity, and Islam, and the interaction between philosophy and religion from Antiquity to the Enlightenment and (ii) to acquire the linguistic and conceptual tools allowing them to read source texts in the original languages, and to conduct research in the areas investigated by the interdisciplinary program. Students are encouraged to complete, in addition, a minor concentration in one of the languages relevant to the academic field.

According to Faculty regulations, Honours students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.00.

Students are strongly encouraged to consult an adviser each year to devise a suitable course combination.

Students who combine the Honours program with a minor concentration in one of the languages relevant to the academic field, or who have acquired proficiency in one language elsewhere may replace 6 credits of the language requirements through additional credits in other segments of the program.

Required Course (3 credits)

RELG 307 (3) Bible, Quran & Interpretations

Complementary Courses (57 credits)

57 credits selected as follows:

Philosophy and Western Religions (PHWR) courses from:

PHWR 300 (3) Philosophy & Western Religions 1
PHWR 301 (3) Philosophy & Western Religions 2
PHWR 500D1 (1.5) Interdisciplinary Seminar
PHWR 500D2 (1.5) Interdisciplinary Seminar

Students are strongly encouraged to take both PHWR 300 and PHWR 301.

History of Philosophy

9-12 credits from the History of Philosophy course list below.

At least one of:

PHIL 354 (3) Plato
PHIL 355 (3) Aristotle

At least one of:

PHIL 356 (3) Early Medieval Philosophy
PHIL 357 (3) Late Medieval and Renaissance Philosophy
PHIL 360 (3) 17th Century Philosophy

Remaining credits, if any, from:

CLAS 415 (3) Advanced Latin: Oratory
CLAS 426 (3) Advanced Greek: Philosophy
PHIL 345 (3) Greek Political Theory
PHIL 350 (3) History and Philosophy of Ancient Science
PHIL 353 (3) The Presocratic Philosophers
PHIL 452 (3) Later Greek Philosophy
PHIL 453 (3) Ancient Metaphysics and Natural Philosophy
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHIL 454</td>
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<td>Ancient Moral Theory</td>
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<tr>
<td>PHIL 551</td>
<td>3</td>
<td>Seminar: Ancient Philosophy 2</td>
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<tr>
<td>PHIL 556</td>
<td>3</td>
<td>Seminar: Medieval Philosophy</td>
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<td>PHIL 560</td>
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<td>Seminar: 17th Century Philosophy</td>
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</table>

**Scriptures and History of the Western Religious Traditions**

3-6 credits from the Scriptures and History of the Western Religious Traditions course list below.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CATH 200</td>
<td>3</td>
<td>Introduction to Catholicism</td>
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<td>CATH 310</td>
<td>3</td>
<td>Catholic Intellectual Traditions</td>
</tr>
<tr>
<td>CATH 320</td>
<td>3</td>
<td>Scripture and Catholicism</td>
</tr>
<tr>
<td>HIST 207</td>
<td>3</td>
<td>Jewish History: 400 B.C.E. to 1000</td>
</tr>
<tr>
<td>HIST 219</td>
<td>3</td>
<td>Jewish History: 1000 - 2000</td>
</tr>
<tr>
<td>ISLA 505</td>
<td>3</td>
<td>Islam: Origin and Early Development</td>
</tr>
<tr>
<td>ISLA 506</td>
<td>3</td>
<td>Islam: Later Developments</td>
</tr>
<tr>
<td>ISLA 510D1</td>
<td>3</td>
<td>History: Islamic Civilization - Classical</td>
</tr>
<tr>
<td>ISLA 510D2</td>
<td>3</td>
<td>History: Islamic Civilization - Classical</td>
</tr>
<tr>
<td>ISLA 511D1</td>
<td>3</td>
<td>History: Islamic Civilization - Mediaeval Era</td>
</tr>
<tr>
<td>ISLA 511D2</td>
<td>3</td>
<td>History: Islamic Civilization - Mediaeval Era</td>
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<td>JWST 201</td>
<td>3</td>
<td>Jewish Law</td>
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<td>JWST 211</td>
<td>3</td>
<td>Jewish Studies 1: Biblical Period</td>
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<tr>
<td>JWST 216</td>
<td>3</td>
<td>Jewish Studies 2: 400 B.C.E. - 1000</td>
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<td>Jewish Studies 3: 1000 - 2000</td>
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<td>JWST 310</td>
<td>3</td>
<td>Believers, Heretics and Critics</td>
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<tr>
<td>JWST 316</td>
<td>3</td>
<td>Social and Ethical Issues Jewish Law 1</td>
</tr>
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<td>JWST 331</td>
<td>3</td>
<td>Bible Interpretation/Medieval Ashkenaz</td>
</tr>
<tr>
<td>JWST 332</td>
<td>3</td>
<td>Bible Interpretation/Sefardic Tradition</td>
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<tr>
<td>JWST 345</td>
<td>3</td>
<td>Introduction to Rabbinic Literature</td>
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<td>JWST 510</td>
<td>3</td>
<td>Jewish Bible Interpretation 1</td>
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<tr>
<td>JWST 511</td>
<td>3</td>
<td>Jewish Bible Interpretation 2</td>
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<tr>
<td>JWST 523</td>
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<td>Ancient Bible Interpretation</td>
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<td>JWST 534</td>
<td>3</td>
<td>Homiletic Midrash</td>
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<td>JWST 535</td>
<td>3</td>
<td>Exegetic Midrash</td>
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<tr>
<td>JWST 538</td>
<td>3</td>
<td>Early Rabbinic Parshanut 1</td>
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<td>JWST 539</td>
<td>3</td>
<td>Biblical Interpretation 1</td>
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<td>JWST 540</td>
<td>3</td>
<td>Biblical Interpretation 2</td>
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<tr>
<td>JWST 546</td>
<td>3</td>
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<td>JWST 575</td>
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<td>Topics in Parshanut</td>
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<tr>
<td>RELG 203</td>
<td>3</td>
<td>Bible and Western Culture</td>
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<tr>
<td>RELG 210</td>
<td>3</td>
<td>Jesus of Nazareth</td>
</tr>
<tr>
<td>RELG 300</td>
<td>3</td>
<td>Second Temple Judaism</td>
</tr>
<tr>
<td>RELG 302</td>
<td>3</td>
<td>Literature of Ancient Israel 1</td>
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<tr>
<td>RELG 303</td>
<td>3</td>
<td>Literature of Ancient Israel 2</td>
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</table>
Jewish, Christian, and Islamic Thought

9-12 credits from the Jewish, Christian, and Islamic Thought course list below with a maximum of 6 credits selected from any one group.

Group 1 - Islamic Studies (ISLA)

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<td>Survey Development of Islamic Thought</td>
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Group 2 - Jewish Studies (JWST)

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<td>JWST 261</td>
<td>3</td>
<td>History of Jewish Philosophy &amp; Thought</td>
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<tr>
<td>JWST 337</td>
<td>3</td>
<td>Jewish Philosophy and Thought 1</td>
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<tr>
<td>JWST 338</td>
<td>3</td>
<td>Jewish Philosophy and Thought 2</td>
</tr>
<tr>
<td>JWST 358</td>
<td>3</td>
<td>Topics in Jewish Philosophy 1</td>
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<tr>
<td>JWST 359</td>
<td>3</td>
<td>Topics in Jewish Philosophy 2</td>
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<tr>
<td>JWST 474</td>
<td>3</td>
<td>Maimonides' Mishneh Torah</td>
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<td>JWST 543</td>
<td>3</td>
<td>Maimonides as Parshan</td>
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<td>JWST 558</td>
<td>3</td>
<td>Topics: Modern Jewish Thought</td>
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<td>3</td>
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Group 3 - Religious Studies (RELG)

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<tr>
<td>RELG 334</td>
<td>3</td>
<td>Christian Thought and Culture</td>
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<tr>
<td>RELG 341</td>
<td>3</td>
<td>Introduction: Philosophy of Religion</td>
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<tr>
<td>RELG 423</td>
<td>3</td>
<td>Reformation Thought</td>
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<td>RELG 439</td>
<td>3</td>
<td>Religious Dialogues</td>
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<tr>
<td>RELG 532</td>
<td>3</td>
<td>History of Christian Thought 1</td>
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<tr>
<td>RELG 533</td>
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</table>
Languages
18-21 credits (two years: 12 credits, or in the case of Arabic, 15 credits) in one language (Arabic, Greek, Hebrew, or Latin)
and
6-9 credits (one year: 6 credits, or in the case of Arabic, 9 credits) in a second language relevant to the program selected from the language lists below.

Arabic, ISLA courses:

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<tr>
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<tr>
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Greek, CLAS and RELG courses:

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<tbody>
<tr>
<td>CLAS 220D1</td>
<td>3</td>
<td>Introductory Ancient Greek</td>
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<td>3</td>
<td>Introductory Ancient Greek</td>
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<tr>
<td>CLAS 321</td>
<td>3</td>
<td>Intermediate Greek: Plato/Xenophon</td>
</tr>
<tr>
<td>CLAS 322</td>
<td>3</td>
<td>Intermediate Greek: Orators</td>
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<tr>
<td>CLAS 323</td>
<td>3</td>
<td>Intermediate Greek: Homer</td>
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<tr>
<td>CLAS 324</td>
<td>3</td>
<td>Intermediate Greek: Poetry</td>
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<tr>
<td>CLAS 325</td>
<td>3</td>
<td>Intermediate Greek: Later Prose</td>
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<tr>
<td>CLAS 326</td>
<td>3</td>
<td>Intermediate Greek: Selections</td>
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<tr>
<td>RELG 280D1</td>
<td>3</td>
<td>Elementary New Testament Greek</td>
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<tr>
<td>RELG 280D2</td>
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<td>Elementary New Testament Greek</td>
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<td>RELG 381</td>
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<td>Advanced New Testament Greek</td>
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Hebrew, JWST and RELG courses:

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<tr>
<td>JWST 200</td>
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<td>Hebrew Language (Intensive)</td>
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<tr>
<td>JWST 220D1</td>
<td>3</td>
<td>Introductory Hebrew</td>
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<td>JWST 220D2</td>
<td>3</td>
<td>Introductory Hebrew</td>
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<tr>
<td>JWST 320D1</td>
<td>3</td>
<td>Intermediate Hebrew</td>
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<tr>
<td>JWST 320D2</td>
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<td>Intermediate Hebrew</td>
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<tr>
<td>RELG 390D1</td>
<td>3</td>
<td>Elementary Biblical Hebrew</td>
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<tr>
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Latin, CLAS courses:

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<th>Credits</th>
<th>Course Name</th>
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<tbody>
<tr>
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<td>3</td>
<td>Introductory Latin 1</td>
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<tr>
<td>CLAS 210D2</td>
<td>3</td>
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<tr>
<td>CLAS 311</td>
<td>3</td>
<td>Catullus/Ovid</td>
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<td>CLAS 312</td>
<td>3</td>
<td>Intermediate Latin: Poetry</td>
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<tr>
<td>CLAS 313</td>
<td>3</td>
<td>Intermediate Latin: Cicero</td>
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<tr>
<td>CLAS 314</td>
<td>3</td>
<td>Intermediate Latin: Historians</td>
</tr>
<tr>
<td>CLAS 315</td>
<td>3</td>
<td>Intermediate Latin: Selections</td>
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</tbody>
</table>
Intermediate Latin: Medieval

Specialized Research Skills
6 credits of courses in specialized skills for conducting research, chosen from:
- PHWR 400 (3) Joint Honours/Honours Tutorial
- PHWR 401 (3) Honours Thesis Tutorial 1
- PHWR 402 (3) Honours Thesis Tutorial 2
- PHWR 500D1 (1.5) Interdisciplinary Seminar
- PHWR 500D2 (1.5) Interdisciplinary Seminar

Bachelor of Arts (B.A.) - Joint Honours Component Philosophy and Western Religions (36 credits)

NOTE: THE JOINT HONOURS COMPONENT IN PHILOSOPHY AND WESTERN RELIGIONS IS NOT AVAILABLE FOR THE 2011-2012 ACADEMIC YEAR.

Students who wish to study at the Honours level in two Arts disciplines may apply to combine Joint Honours program components from two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs". Prior to registering for each Joint Honours component, students should consult an adviser in each department for approval of their course selection.

The Joint Honours Component Philosophy and Western Religions was designed for students who wish (i) to explore the intertwined intellectual worlds of Judaism, Christianity, and Islam, and the interaction between philosophy and religion from Antiquity to the Enlightenment and (ii) to acquire the linguistic and conceptual tools allowing them to read source texts in the original languages, and to conduct research in the areas investigated by the interdisciplinary program. Students will benefit most from the Joint Honours if they combine it with a program in Philosophy, Islamic Studies, Jewish Studies, Religious Studies, or Classics. Students are also encouraged to complete a minor concentration in one of the languages relevant to the academic field.

According to Faculty regulations, Joint Honours students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.00. Students are strongly encouraged to consult an adviser each year to devise a suitable course combination.

Required Course (3 credits)
- RELG 307 (3) Bible, Quran & Interpretations

Complementary Courses (33 credits)
33 credits selected as follows:

Philosophy and Western Religions (PHWR)
3-9 credits of Philosophy and Western Religions (PHWR) courses from:
- PHWR 300 (3) Philosophy & Western Religions 1
- PHWR 301 (3) Philosophy & Western Religions 2
- PHWR 500D1 (1.5) Interdisciplinary Seminar
- PHWR 500D2 (1.5) Interdisciplinary Seminar

Students are strongly encouraged to take both PHWR 300 and PHWR 301.

History of Philosophy
3-6 credits from the History of Philosophy course list below.
At least one of:
- PHIL 354 (3) Plato
- PHIL 355 (3) Aristotle

Remaining credits, if any, from:
- CLAS 415 (3) Advanced Latin: Oratory
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<tbody>
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<td>PHIL 356</td>
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<td>Early Medieval Philosophy</td>
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<tr>
<td>PHIL 357</td>
<td>3</td>
<td>Late Medieval and Renaissance Philosophy</td>
</tr>
<tr>
<td>PHIL 452</td>
<td>3</td>
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**Scriptures and History of the Western Religious Traditions**

0-3 credits from the Scriptures and History of the Western Religious Traditions course list below.

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<td>Introduction to Catholicism</td>
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<td>CATH 310</td>
<td>3</td>
<td>Catholic Intellectual Traditions</td>
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<td>CATH 320</td>
<td>3</td>
<td>Scripture and Catholicism</td>
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<tr>
<td>HIST 207</td>
<td>3</td>
<td>Jewish History: 400 B.C.E. to 1000</td>
</tr>
<tr>
<td>HIST 219</td>
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<td>Islam: Later Developments</td>
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<tr>
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<td>3</td>
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<td>Jewish Law</td>
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<td>RELG 312</td>
<td>(3)</td>
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<td>RELG 323</td>
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<td>RELG 330</td>
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<td>Reformed Theology</td>
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<td>Post Exilic Biblical Literature</td>
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**Jewish, Christian, and Islamic Thought**

6 credits from the Jewish, Christian, and Islamic Thought course list below.

**Group 1 - Islamic Studies (ISLA)**

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<td>Survey Development of Islamic Thought</td>
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**Group 2 - Jewish Studies (JWST)**

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<td>History of Jewish Philosophy &amp; Thought</td>
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<td>Jewish Philosophy and Thought 1</td>
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<td>JWST 338</td>
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<td>Jewish Philosophy and Thought 2</td>
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<td>Topics in Jewish Philosophy 1</td>
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<td>Topics in Jewish Philosophy 2</td>
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<td>JWST 474</td>
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<td>Maimonides' Mishneh Torah</td>
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<td>Maimonides as Parshah</td>
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<td>JWST 558</td>
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<td>Topics: Modern Jewish Thought</td>
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<td>Medieval Islamic and Jewish Philosophy</td>
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**Group 3 - Religious Studies (RELG)**

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<td>RELG 341</td>
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<td>Introduction: Philosophy of Religion</td>
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<td>RELG 423</td>
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<td>Reformation Thought</td>
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<td>RELG 439</td>
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<td>Religious Dialogues</td>
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<tr>
<td>RELG 532</td>
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<td>History of Christian Thought 1</td>
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<td>RELG 533</td>
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<td>History of Christian Thought 2</td>
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**Languages**

12-15 credits (two years: 12 credits, or in the case of Arabic, 15 credits) in one language (Arabic, Greek, Hebrew, or Latin) selected from the language course lists below.

**Arabic, ISLA courses:**
- ISLA 521D1 (4.5) Introductory Arabic
- ISLA 521D2 (4.5) Introductory Arabic
- ISLA 522D1 (3) Lower Intermediate Arabic
- ISLA 522D2 (3) Lower Intermediate Arabic

**Greek, CLAS and RELG courses:**
- CLAS 220D1 (3) Introductory Ancient Greek
- CLAS 220D2 (3) Introductory Ancient Greek
- CLAS 321 (3) Intermediate Greek: Plato/Xenophon
- CLAS 322 (3) Intermediate Greek: Orators
- CLAS 323 (3) Intermediate Greek: Homer
- CLAS 324 (3) Intermediate Greek: Poetry
- CLAS 325 (3) Intermediate Greek: Later Prose
- CLAS 326 (3) Intermediate Greek: Selections
- RELG 280D1 (3) Elementary New Testament Greek
- RELG 280D2 (3) Elementary New Testament Greek
- RELG 381 (3) Advanced New Testament Greek

**Hebrew, JWST and RELG courses:**
- JWST 200 (12) Hebrew Language (Intensive)
- JWST 220D1 (3) Introductory Hebrew
- JWST 220D2 (3) Introductory Hebrew
- JWST 320D1 (3) Intermediate Hebrew
- JWST 320D2 (3) Intermediate Hebrew
- RELG 390D1 (3) Elementary Biblical Hebrew
- RELG 390D2 (3) Elementary Biblical Hebrew

**Latin, CLAS courses:**
- CLAS 210D1 (3) Introductory Latin 1
- CLAS 210D2 (3) Introductory Latin 1
- CLAS 311 (3) Catullus/Ovid
- CLAS 312 (3) Intermediate Latin: Poetry
- CLAS 313 (3) Intermediate Latin: Cicero
- CLAS 314 (3) Intermediate Latin: Historians
- CLAS 315 (3) Intermediate Latin: Selections
- CLAS 316 (3) Intermediate Latin: Medieval
Specialized Research Skills

3 credits of courses in specialized skills for conducting research, chosen from:

- PHWR 400 (3) Joint Honours/Honours Tutorial
- PHWR 500D1 (1.5) Interdisciplinary Seminar
- PHWR 500D2 (1.5) Interdisciplinary Seminar

3.11.42 Political Science (POLI)

3.11.42.1 Location

Stephen Leacock Building, Room 414
855 Sherbrooke Street West
Montreal, Quebec H3A 2T7

Telephone: 514-398-4800
Fax: 514-398-1770
Website: [www.mcgill.ca/politicalscience](http://www.mcgill.ca/politicalscience)

3.11.42.2 About Political Science

Students wishing to do an Honours degree or a major or minor concentration in Political Science should consult with a Political Science departmental adviser each year in order to devise a suitable program. Proper selection of courses is required if a student wants to graduate on time.

3.11.42.3 Procedure for New Students

All new students entering the Political Science program (including minor concentrations) are strongly urged to attend an information meeting scheduled at the end of August. The date and location of the meeting will be posted on the web. Attendance will help students prepare for their session with an adviser. It is the student's responsibility to be in Montreal for the meeting. The following brochures are available on the web: Major and Honours Programs in Political Science and Minor Concentrations in Political Science. It is essential to read through these prior to attending the information meeting.

3.11.42.4 For All Political Science Students

The brochures Major and Honours Programs in Political Science and Minor Concentrations in Political Science are both available in the Department as well as on the web. Students wishing to have courses taken at other universities counted as satisfying program requirements must bring copies of their transcripts and course syllabi to the Director of the Major or Honours program or the Director of Undergraduate Studies. Students are not accepted into the Honours program in Political Science until their second year in Political Science; an exception is made for those in Joint Honours programs.

As course and personnel changes may have occurred after this publication was prepared, students should not use it to plan their program of studies without first consulting the Department office for updated information.

3.11.42.5 Political Science (POLI) Faculty

Chair

Richard Schultz

Emeritus Professors

Baldev Raj Nayar; B.A., M.A.(Punjab), M.A., Ph.D.(Chic.)
Blema Steinberg; B.A.(McG.), M.A.,(C’nell), Ph.D.(McG.)

Professors

Mark R. Brawley; B.A.(Calif.), M.A., Ph.D.(Calif.-LA)
Michael Brecher; B.A.(McG.), M.A., Ph.D.(Yale), F.R.S.C. (R.B. Angus Professor of Economics and Political Science) (on leave Winter 2011)
Rex Brynen; B.A.(Vic., BC), M.A., Ph.D.(Calg.)
Elisabeth Gidengil; B.A.(LSE), M.A.(NYU), Ph.D.(McG.)
Jody Heymann; B.A.(Yale), M.D., Ph.D.(Harv.) (Canada Research Chair)
Profs.
Christopher Manfredi; B.A., M.A.(Calg.), M.A., Ph.D.(Claremont)
T.V. Paul; B.A.(Kerala), M.Phil.(JNU), M.A., Ph.D.(Calif.-LA) (James McGill Professor)
Filippo Sabetti; B.A.(McM.), M.A., Ph.D.(Ind.)
Richard Schultz; B.A.(York), M.A.(Manc.), Ph.D.(York) (James McGill Professor)
Harold M. Waller; M.S.(N’western), Ph.D.(G’town)

Assoc. Prof.:
Arash Abizadeh; B.A.(Winn.), M.Phil.(Oxf.), Ph.D.(Harv.)
Eric Belanger; B.A., M.A.(Laval), Ph.D.(Montr.)
Juliet Johnson; A.B.(Stan.), M.A., Ph.D.(Princ.)
Jacob Levy; A.B.(Brown), M.A., Ph.D.(Princ.)
Catherine Lu; B.A., M.A.(Br. Col.), Ph.D.(Tor.)
Antonia Maioni; M.A.(Car.), Ph.D.(N’western) (William Dawson Scholar)
Hudson Meadwell; B.A.(Manit.), M.A., Ph.D.(Duke)
Philip D. Oxhorn; B.A.(Redlands), M.A.(Cant.), Ph.D.(Harv.)
Stephen Saideman; B.A.(Oberlin), M.A., Ph.D.(Calif.-San Diego) (Canada Research Chair)
Stuart Soroka; B.A.(Qu.), M.A.(Car.), Ph.D.(Br. Col.) (William Dawson Scholar)
Dietlind Stolle; M.A.(Claremont), Ph.D.(Princ.)
Narendra Subramanian; B.A.(Princ.), M.A., Ph.D.(MIT)

Ass. Prof.:
Erik Kuhonta; B.A.(Penn.), Ph.D.(Princ.)
Khalid Medani; B.A.(Brown), M.A.(G’town), M.A., Ph.D.(Calif., Berk.)
Victor Muniz Fraticelli; B.A.(C’nell), J.D.(Puerto Rico), M.A., Ph.D.(Chic.)
Krzysztof Pelc; B.A., B.Com.(Qu.), Ph.D.(G’town)
Maria Popova; B.A.(Dart.), Ph.D.(Harv.)
Vincent Pouliot; B.Sc.(Montr.), D.E.A.(Bordeaux), Ph.D.(Tor.)
Christa Scholtz; B.A.(Alta.), M.A.(Ott.), Ph.D.(Princ.)
Christina Tarnopolsky; B.A.(Tor.), M.A., Ph.D.(Chic.)

Fac. Lect.
Jason Ferrell; M.A.(Tulane), Ph.D.(McG.)
Imad Mansour; B.A., M.A.(Beirut), Ph.D.(McG.)
William Clare Roberts; B.A.(Carleton Coll.), Ph.D.(Penn. St.)

3.11.42.6 Bachelor of Arts (B.A.) - Minor Concentration Political Science (18 credits)
This program may be expanded to the Major Concentration Political Science.

Complementary Courses (18 credits)
18 credits selected as follows:
6-9 credits at the 200 level from at least two of four fields:

Canadian Politics
POLI 221 (3) Government of Canada
POLI 222 (3) Political Process and Behaviour in Canada
POLI 226 (3) La vie politique québécoise

**Comparative Politics**

POLI 211 (3) Comparative Government and Politics
POLI 212 (3) Government and Politics - Developed World
POLI 227 (3) Developing Areas/Introduction

**International Relations**

POLI 243 (3) International Politics of Economic Relations
POLI 244 (3) International Politics: State Behaviour

**Political Theory**

POLI 231 (3) Introduction to Political Theory
POLI 232 (3) Modern Political Thought

9-12 credits above the 200 level from at least two of four fields:

**Canadian Politics**

POLI 320 (3) Issues in Canadian Democracy
POLI 321 (3) Issues: Canadian Public Policy
POLI 326 (3) Provincial Politics
POLI 336 (3) Le Québec et le Canada
POLI 337 (3) Canadian Public Administration
POLI 342 (3) Canadian Foreign Policy
POLI 371 (3) Challenge of Canadian Federalism
POLI 372 (3) Aboriginal Politics in Canada
POLI 378 (3) The Canadian Judicial Process
POLI 379 (3) Topics in Canadian Politics
POLI 410 (3) Canadian Political Parties
POLI 411 (3) Immigration and Multiculturalism in Canada
POLI 412 (3) Canadian Voting/Public Opinion
POLI 415 (3) Political Parties
POLI 416 (3) Political Economy of Canada
POLI 417 (3) Health Care in Canada
POLI 421 (3) Social Movements in Canada
POLI 426 (3) Partis politiques et comportements électoraux au Québec
POLI 427 (3) Selected Topics: Canadian Politics
POLI 446 (3) Les politiques publiques au Québec
POLI 447 (3) Canadian Constitutional Politics
POLI 467 (3) Politique et société à Montréal
POLI 469 (3) Politics of Regulation
POLI 478 (3) The Canadian Constitution

Comparative Politics (Developed and Developing)

POLI 300D1 (3) Developing Areas/Revolution
POLI 300D2 (3) Developing Areas/Revolution
POLI 315 (3) Approaches to Political Economy
POLI 318 (3) Comparative Local Government
POLI 319 (3) Politics of Latin America
POLI 322 (3) Political Change in South Asia
POLI 323 (3) Developing Areas/China and Japan
POLI 324 (3) Developing Areas/Africa
POLI 325D1 (3) Government and Politics: United States
POLI 325D2 (3) Government and Politics: United States
POLI 328 (3) Comparing European Democracies
POLI 329 (3) Russian and Soviet Politics
POLI 330 (3) Law and Courts in Europe
POLI 331 (3) Politics in East Central Europe
POLI 332 (3) Politics of Former Soviet Republics
POLI 338 (3) Developing Areas/Topics 1
POLI 339 (3) Comparative Developed: Topics 1
POLI 340 (3) Developing Areas/Middle East
POLI 356 (3) Public Policy: Western Europe
POLI 357 (3) Politics: Contemporary Europe
POLI 361 (3) Political Participation in Comparative Perspective
POLI 369 (3) Politics of Southeast Asia
POLI 411 (3) Immigration and Multiculturalism in Canada
POLI 414 (3) Society and Politics in Italy
POLI 419 (3) Transitions from Communism
POLI 422 (3) Developing Areas/Topics 2
POLI 423 (3) Politics of Ethno-Nationalism
POLI 424 (3) Media and Politics
POLI 425 (3) Topics in American Politics
POLI 428 (3) Politics of France
POLI 429 (3) The Politics of South Africa
POLI 430 (3) The Politics of Scandinavia
POLI 431 (3) Nations and States/Developed World
POLI 432 (3) Selected Topics: Comparative Politics
POLI 435 (3) Identity and Inequality
POLI 437 (3) Politics in Israel
POLI 438 (3) British Politics
POLI 450 (3) Peacebuilding
POLI 451 (3) The European Union
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<td>Developing Areas/Social Movements</td>
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<td>POLI 473</td>
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<td>Democracy and the Market</td>
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**International Relations**

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<td>Arab-Israel Conflict, Crisis, Peace</td>
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<td>POLI 351</td>
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**Political Theory**

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POLI 455  (3)  American Political Thought
POLI 459  (3)  Topics in Political Theory 2
POLI 470  (3)  Philosophy, Economy and Society

Other political sciences courses may be used to satisfy this Minor concentration subject to approval.

3.11.42.7 Bachelor of Arts (B.A.) - Minor Concentration Political Science: Canada/Québec (18 credits)

This program may not be expanded to the Major Concentration Political Science.

Complementary Courses (18 credits)

18 credits of complementary courses selected with the specifications described below.

* Note: Courses marked with an asterisk ("*") are on Québec.

6 credits at the introductory level from:

POLI 221  (3)  Government of Canada
POLI 222  (3)  Political Process and Behaviour in Canada
POLI 226*  (3)  La vie politique québécoise

12 credits, of which 3 credits must be on Québec; no more than 6 credits may be taken in courses outside the Department of Political Science (courses with a subject code other than "POLI"); and no more than 6 credits may be taken at the 200 level from:

ANTH 306  (3)  Native Peoples' History in Canada
CANS 200  (3)  Introduction to the Study of Canada
CANS 304*  (3)  Nationalism in Canada
CANS 413*  (3)  Canada and Quebec Seminar
ECON 308  (3)  Governmental Policy Towards Business
FREN 329*  (3)  Civilisation québécoise
HIST 202  (3)  Survey: Canada to 1867
HIST 203  (3)  Survey: Canada since 1867
HIST 300  (3)  Nationalisms in Canada
HIST 303*  (3)  History of Quebec
HIST 322  (3)  Canada: American Presence since 1939
HIST 333*  (3)  Natives and French
HIST 334*  (3)  History of New France
HIST 353*  (3)  History of Montreal
HIST 357  (3)  Religion and Canadian Society in Historical Perspective
HIST 363  (3)  Canada 1870-1914
HIST 364  (3)  Canada 1914-1945
HIST 367  (3)  Canada since 1945
HIST 370  (3)  Canadian Party Politics 1867-2000
HIST 397  (3)  Canada: Ethnicity, Migration
HIST 403*  (3)  History of Quebec Institutions
POLI 226*  (3)  La vie politique québécoise
POLI 320  (3)  Issues in Canadian Democracy
POLI 321  (3)  Issues: Canadian Public Policy
### Bachelor of Arts (B.A.) - Minor Concentration Comparative Politics (18 credits)

This program may not be expanded to the Major Concentration Political Science.

#### Required Course (3 credits)

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<tr>
<td>POLI 211</td>
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#### Complementary Courses (15 credits)

15 credits

3 credits from:

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<tr>
<td>POLI 212</td>
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<td>POLI 227</td>
<td>Developing Areas/Introduction</td>
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12 credits from:

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<tr>
<td>POLI 300D1</td>
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<tr>
<td>POLI 431</td>
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</tr>
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<td>POLI 463</td>
<td>(3)</td>
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<td>POLI 466</td>
<td>(3)</td>
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<td>POLI 474</td>
<td>(3)</td>
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<td>POLI 475</td>
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</tr>
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</table>

**3.11.42.9 Bachelor of Arts (B.A.) - Minor Concentration International Relations (18 credits)**

This program may not be expanded to the Major Concentration Political Science.
### Required Courses (6 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLI 243</td>
<td>(3)</td>
<td>International Politics of Economic Relations</td>
</tr>
<tr>
<td>POLI 244</td>
<td>(3)</td>
<td>International Politics: State Behaviour</td>
</tr>
</tbody>
</table>

### Complementary Courses (12 credits)

12 credits selected as follows:

#### Thematic Courses

6 credits must be from Thematic courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>POLI 345</td>
<td>(3)</td>
<td>International Organizations</td>
</tr>
<tr>
<td>POLI 347</td>
<td>(3)</td>
<td>Arab-Israel Conflict, Crisis, Peace</td>
</tr>
<tr>
<td>POLI 351</td>
<td>(3)</td>
<td>The Causes of Major Wars</td>
</tr>
<tr>
<td>POLI 354</td>
<td>(3)</td>
<td>Approaches to International Political Economy</td>
</tr>
<tr>
<td>POLI 360</td>
<td>(3)</td>
<td>Security: War and Peace</td>
</tr>
<tr>
<td>POLI 362</td>
<td>(3)</td>
<td>Political Theory and International Relations</td>
</tr>
<tr>
<td>POLI 440</td>
<td>(3)</td>
<td>Civil-Military Relations</td>
</tr>
<tr>
<td>POLI 441</td>
<td>(3)</td>
<td>IPE: Trade</td>
</tr>
<tr>
<td>POLI 442</td>
<td>(3)</td>
<td>International Relations of Ethnic Conflict</td>
</tr>
<tr>
<td>POLI 445</td>
<td>(3)</td>
<td>International Political Economy: Monetary Relations</td>
</tr>
<tr>
<td>POLI 450</td>
<td>(3)</td>
<td>Peacebuilding</td>
</tr>
<tr>
<td>POLI 451</td>
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<td>The European Union</td>
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</table>

#### Regional Courses

Remaining credits may also be from Regional courses:

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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>POLI 341</td>
<td>(3)</td>
<td>Foreign Policy: The Middle East</td>
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<tr>
<td>POLI 342</td>
<td>(3)</td>
<td>Canadian Foreign Policy</td>
</tr>
<tr>
<td>POLI 344</td>
<td>(3)</td>
<td>Foreign Policy: Europe</td>
</tr>
<tr>
<td>POLI 346</td>
<td>(3)</td>
<td>American Foreign Policy</td>
</tr>
<tr>
<td>POLI 349</td>
<td>(3)</td>
<td>Foreign Policy: Asia</td>
</tr>
<tr>
<td>POLI 352</td>
<td>(3)</td>
<td>International Policy/Foreign Policy: Africa</td>
</tr>
</tbody>
</table>

### Bachelor of Arts (B.A.) - Minor Concentration Political Theory (18 credits)

This program offers a specialization in the subfield of political theory and allows students the opportunity to draw on closely-related courses in moral and political philosophy offered by the Department of Philosophy. Students who have completed the appropriate introductory work in the disciplines of classics, economics, history, or sociology may take specified courses in these disciplines toward the program requirements.

#### Complementary Courses (18 credits)

18 credits selected as follows:

#### Category A

9 credits from Category A.

3 credits at the introductory level from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 240</td>
<td>(3)</td>
<td>Political Philosophy 1</td>
</tr>
<tr>
<td>POLI 231</td>
<td>(3)</td>
<td>Introduction to Political Theory</td>
</tr>
</tbody>
</table>
Modern Political Thought (3) POLI 232

At least 6 credits selected from:

- POLI 333 (3) Western Political Theory 1
- POLI 334 (3) Western Political Theory 2
- POLI 433 (3) History of Political/Social Theory 3
- POLI 434 (3) History of Political/Social Theory 4

**Category B**

9 credits from Category B.

Note: A course can only be used once in the program; a course used toward Category A may not also be used toward Category B.

<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>CLAS 416</td>
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<td>Advanced Latin: Philosophy</td>
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<tr>
<td>CLAS 426</td>
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<td>Advanced Greek: Philosophy</td>
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<td>ECON 334</td>
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<td>History of Economic Doctrines</td>
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<tr>
<td>HIST 320</td>
<td>(3)</td>
<td>European Thought and Culture 1</td>
</tr>
<tr>
<td>HIST 321</td>
<td>(3)</td>
<td>European Thought and Culture 2</td>
</tr>
<tr>
<td>PHIL 334</td>
<td>(3)</td>
<td>Ethical Theory</td>
</tr>
<tr>
<td>PHIL 344</td>
<td>(3)</td>
<td>Medieval and Renaissance Political Theory</td>
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<td>PHIL 345</td>
<td>(3)</td>
<td>Greek Political Theory</td>
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<td>PHIL 348</td>
<td>(3)</td>
<td>Philosophy of Law 1</td>
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<td>PHIL 442</td>
<td>(3)</td>
<td>Topics in Feminist Theory</td>
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<tr>
<td>PHIL 444</td>
<td>(3)</td>
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<td>PHIL 445</td>
<td>(3)</td>
<td>19th Century Political Theory</td>
</tr>
<tr>
<td>PHIL 454</td>
<td>(3)</td>
<td>Ancient Moral Theory</td>
</tr>
<tr>
<td>POLI 333</td>
<td>(3)</td>
<td>Western Political Theory 1</td>
</tr>
<tr>
<td>POLI 334</td>
<td>(3)</td>
<td>Western Political Theory 2</td>
</tr>
<tr>
<td>POLI 362</td>
<td>(3)</td>
<td>Political Theory and International Relations</td>
</tr>
<tr>
<td>POLI 363</td>
<td>(3)</td>
<td>Contemporary Political Theory</td>
</tr>
<tr>
<td>POLI 364</td>
<td>(3)</td>
<td>Radical Political Thought</td>
</tr>
<tr>
<td>POLI 365</td>
<td>(3)</td>
<td>Democratic Theory</td>
</tr>
<tr>
<td>POLI 366</td>
<td>(3)</td>
<td>Topics in Political Theory 1</td>
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<tr>
<td>POLI 367</td>
<td>(3)</td>
<td>Liberal Political Theory</td>
</tr>
<tr>
<td>POLI 433</td>
<td>(3)</td>
<td>History of Political/Social Theory 3</td>
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<tr>
<td>POLI 434</td>
<td>(3)</td>
<td>History of Political/Social Theory 4</td>
</tr>
<tr>
<td>POLI 455</td>
<td>(3)</td>
<td>American Political Thought</td>
</tr>
<tr>
<td>POLI 459</td>
<td>(3)</td>
<td>Topics in Political Theory 2</td>
</tr>
<tr>
<td>POLI 470</td>
<td>(3)</td>
<td>Philosophy, Economy and Society</td>
</tr>
<tr>
<td>SOCI 330</td>
<td>(3)</td>
<td>Sociological Theory</td>
</tr>
</tbody>
</table>

**Bachelor of Arts (B.A.) - Minor Concentration Political Economy (18 credits)**

This program may not be expanded to the Major Concentration Political Science.

**Complementary Courses (18 credits)**
18 credits selected as follows:

3 credits from introductory political science courses:
- POLI 211 (3) Comparative Government and Politics
- POLI 227 (3) Developing Areas/Introduction
- POLI 243 (3) International Politics of Economic Relations

3 credits from introductory economics courses:
- ECON 208 (3) Microeconomic Analysis and Applications
- ECON 209 (3) Macroeconomic Analysis and Applications

Note: Students who take or have taken ECON 230D1/D2 or ECON 250D1/D2 are deemed to have fulfilled the economics requirement. However, the 3 complementary economics credits must be replaced with an additional political science course from the list below.

12 credits from:
- POLI 243 (3) International Politics of Economic Relations
- POLI 315 (3) Approaches to Political Economy
- POLI 321 (3) Issues: Canadian Public Policy
- POLI 354 (3) Approaches to International Political Economy
- POLI 416 (3) Political Economy of Canada
- POLI 441 (3) IPE: Trade
- POLI 445 (3) International Political Economy: Monetary Relations
- POLI 451 (3) The European Union
- POLI 469 (3) Politics of Regulation
- POLI 473 (3) Democracy and the Market

3.11.42.12 Bachelor of Arts (B.A.) – Minor Concentration Politics, Law and Society (18 credits)

Revision, August 2011. Start of revision.

This program may not be expanded to the Major Concentration Political Science.

**Required Courses (3 credits)**
- POLI 211 (3) Comparative Government and Politics

**Complementary Courses (15 credits)**
15 credits selected as follows:

3 credits from:
- POLI 221 (3) Government of Canada
- POLI 222 (3) Political Process and Behaviour in Canada

3 credits from:
- POLI 330 (3) Law and Courts in Europe
- POLI 378 (3) The Canadian Judicial Process
9 credits selected from the courses below with at least 6 credits from non-political science courses (subject code other than "POLI"), not more than 3 credits from communication studies ("COMS") courses, and no more than 3 credits at the 200 level:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ANTH 222</td>
<td>Legal Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>COMS 365</td>
<td>Introduction to Electronic Media Policy</td>
<td>3</td>
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<td>COMS 493</td>
<td>Current Issues in Electronic Media Policy</td>
<td>3</td>
</tr>
<tr>
<td>ISLA 383</td>
<td>Central Questions in Islamic Law</td>
<td>3</td>
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<tr>
<td>JWST 201</td>
<td>Jewish Law</td>
<td>3</td>
</tr>
<tr>
<td>JWST 316</td>
<td>Social and Ethical Issues Jewish Law 1</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 348</td>
<td>Philosophy of Law 1</td>
<td>3</td>
</tr>
<tr>
<td>POLI 318</td>
<td>Comparative Local Government</td>
<td>3</td>
</tr>
<tr>
<td>POLI 321</td>
<td>Issues: Canadian Public Policy</td>
<td>3</td>
</tr>
<tr>
<td>POLI 330</td>
<td>Law and Courts in Europe</td>
<td>3</td>
</tr>
<tr>
<td>POLI 337</td>
<td>Canadian Public Administration</td>
<td>3</td>
</tr>
<tr>
<td>POLI 378</td>
<td>The Canadian Judicial Process</td>
<td>3</td>
</tr>
<tr>
<td>POLI 417</td>
<td>Health Care in Canada</td>
<td>3</td>
</tr>
<tr>
<td>POLI 478</td>
<td>The Canadian Constitution</td>
<td>3</td>
</tr>
<tr>
<td>PRV2 500*</td>
<td>Children and the Law</td>
<td>3</td>
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<tr>
<td>SOCI 388</td>
<td>Crime</td>
<td>3</td>
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<tr>
<td>SOCI 488</td>
<td>Punishment and Prisons</td>
<td>3</td>
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* Note: To register for the course offered by the Faculty of Law, PRV2 500, a student must apply to the Faculty of Law as a Special student and provide the following: a curriculum vitae, a copy of his/her academic record, and the reason for wanting to take the course.

Revision, August 2011. End of revision.

**Bachelor of Arts (B.A.) - Minor Concentration South Asia (18 credits)**

This program may not be expanded to the Major Concentration Political Science.

**Required Courses (6 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
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<tr>
<td>POLI 227</td>
<td>Developing Areas/Introduction</td>
<td>3</td>
</tr>
<tr>
<td>POLI 322</td>
<td>Political Change in South Asia</td>
<td>3</td>
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</table>

**Complementary Courses (12 credits)**

12 credits selected as follows:

3-6 credits from:

<table>
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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ANTH 327</td>
<td>Peoples of South Asia</td>
<td>3</td>
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<tr>
<td>ISLA 500D1</td>
<td>History of Islamic India</td>
<td>3</td>
</tr>
<tr>
<td>ISLA 500D2</td>
<td>History of Islamic India</td>
<td>3</td>
</tr>
<tr>
<td>RELG 252</td>
<td>Hinduism and Buddhism</td>
<td>3</td>
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<tr>
<td>RELG 344</td>
<td>Mahayana Buddhism</td>
<td>3</td>
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<tr>
<td>RELG 348</td>
<td>Classical Hinduism</td>
<td>3</td>
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<td>RELG 350</td>
<td>Bhakti Hinduism</td>
<td>3</td>
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<td>RELG 454</td>
<td>Modern Hindu Thought</td>
<td>3</td>
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</table>

6-9 credits from:
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<tr>
<td>ANTH 212</td>
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<td>Anthropology of Development</td>
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<tr>
<td>ANTH 327</td>
<td>(3)</td>
<td>Peoples of South Asia</td>
</tr>
<tr>
<td>ANTH 427</td>
<td>(3)</td>
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<td>ISLA 505</td>
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<td>Islam: Origin and Early Development</td>
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<td>ISLA 506</td>
<td>(3)</td>
<td>Islam: Later Developments</td>
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<td>RELG 339</td>
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<td>Gender &amp; Sexuality in Buddhism</td>
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<td>RELG 342</td>
<td>(3)</td>
<td>Theravada Buddhist Literature</td>
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<tr>
<td>RELG 371</td>
<td>(3)</td>
<td>Ethics of Violence/Non-Violence</td>
</tr>
<tr>
<td>SOCI 254</td>
<td>(3)</td>
<td>Development and Underdevelopment</td>
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</tbody>
</table>

### 3.11.42.14 Bachelor of Arts (B.A.) - Major Concentration Political Science (36 credits)

#### Complementary Courses (36 credits)

36 credits of courses selected from the four main fields of political science (Canadian Politics, Comparative Politics (Developed Areas and Developing Areas), International Relations, and Political Theory) with the following specifications.

- No more than one-half of the credits (18 credits) may be taken in a single field of political science, unless the field is Comparative Politics in which case the maximum is 21 credits, provided courses are taken in both Developed Areas and Developing Areas.
- No more than 15 of the 36 credits may be at the 200-level.
- In the final year, no course used toward the program requirements may be below the 300 level.
- Only one 500-level Political Science Honours Seminar may be taken and only in the final year.
- Course lists for each field of political science are provided below.

#### Advising Information

In the first year of the program (U1), students are advised to select 12-15 credits from at least three of the four main fields of political science. U1 students should normally take courses at the 200 level only. However, those in their second term of U1 may, with the approval of their program adviser, take one 300-level course provided that they have a B+ average in their first term courses and have completed the 200-level prerequisite for the course.

#### Canadian Politics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
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<tr>
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<td>Government of Canada</td>
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<tr>
<td>POLI 222</td>
<td>(3)</td>
<td>Political Process and Behaviour in Canada</td>
</tr>
<tr>
<td>POLI 226</td>
<td>(3)</td>
<td>La vie politique québécoise</td>
</tr>
<tr>
<td>POLI 320</td>
<td>(3)</td>
<td>Issues in Canadian Democracy</td>
</tr>
<tr>
<td>POLI 321</td>
<td>(3)</td>
<td>Issues: Canadian Public Policy</td>
</tr>
<tr>
<td>POLI 326</td>
<td>(3)</td>
<td>Provincial Politics</td>
</tr>
<tr>
<td>POLI 336</td>
<td>(3)</td>
<td>Le Québec et le Canada</td>
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<tr>
<td>POLI 337</td>
<td>(3)</td>
<td>Canadian Public Administration</td>
</tr>
<tr>
<td>POLI 342</td>
<td>(3)</td>
<td>Canadian Foreign Policy</td>
</tr>
<tr>
<td>POLI 371</td>
<td>(3)</td>
<td>Challenge of Canadian Federalism</td>
</tr>
<tr>
<td>POLI 372</td>
<td>(3)</td>
<td>Aboriginal Politics in Canada</td>
</tr>
<tr>
<td>POLI 378</td>
<td>(3)</td>
<td>The Canadian Judicial Process</td>
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<td>POLI 379</td>
<td>(3)</td>
<td>Topics in Canadian Politics</td>
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<td>POLI 410</td>
<td>(3)</td>
<td>Canadian Political Parties</td>
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<td>POLI 411</td>
<td>(3)</td>
<td>Immigration and Multiculturalism in Canada</td>
</tr>
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<td>POLI 412</td>
<td>(3)</td>
<td>Canadian Voting/Public Opinion</td>
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<tr>
<td>POLI 415</td>
<td>(3)</td>
<td>Political Parties</td>
</tr>
<tr>
<td>POLI 416</td>
<td>(3)</td>
<td>Political Economy of Canada</td>
</tr>
</tbody>
</table>
POLI 417 (3) Health Care in Canada
POLI 421 (3) Social Movements in Canada
POLI 424 (3) Media and Politics
POLI 426 (3) Partis politiques et comportements électoraux au Québec
POLI 427 (3) Selected Topics: Canadian Politics
POLI 446 (3) Les politiques publiques au Québec
POLI 447 (3) Canadian Constitutional Politics
POLI 467 (3) Politique et société à Montréal
POLI 469 (3) Politics of Regulation
POLI 478 (3) The Canadian Constitution
POLI 521 (3) Seminar: Canadian Politics and Government

Comparative Politics - Developed Areas

POLI 211 (3) Comparative Government and Politics
POLI 212 (3) Government and Politics - Developed World
POLI 315 (3) Approaches to Political Economy
POLI 318 (3) Comparative Local Government
POLI 325D1 (3) Government and Politics: United States
POLI 325D2 (3) Government and Politics: United States
POLI 328 (3) Comparing European Democracies
POLI 329 (3) Russian and Soviet Politics
POLI 330 (3) Law and Courts in Europe
POLI 331 (3) Politics in East Central Europe
POLI 332 (3) Politics of Former Soviet Republics
POLI 339 (3) Comparative Developed: Topics 1
POLI 356 (3) Public Policy: Western Europe
POLI 357 (3) Politics: Contemporary Europe
POLI 361 (3) Political Participation in Comparative Perspective
POLI 411 (3) Immigration and Multiculturalism in Canada
POLI 414 (3) Society and Politics in Italy
POLI 419 (3) Transitions from Communism
POLI 424 (3) Media and Politics
POLI 425 (3) Topics in American Politics
POLI 428 (3) Politics of France
POLI 430 (3) The Politics of Scandinavia
POLI 431 (3) Nations and States/Developed World
POLI 432 (3) Selected Topics: Comparative Politics
POLI 437 (3) Politics in Israel
POLI 438 (3) British Politics
POLI 451 (3) The European Union
POLI 463 (3) Politics of Germany
POLI 466 (3) Public Policy Analysis
<table>
<thead>
<tr>
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<th>Course Title</th>
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<tr>
<td>POLI 524</td>
<td>3</td>
<td>Seminar: Developed Areas</td>
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</table>

### Comparative Politics - Developing Areas

<table>
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<th>Credits</th>
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<tbody>
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<td>3</td>
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</tr>
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<td>POLI 300D1</td>
<td>3</td>
<td>Developing Areas/Revolution</td>
</tr>
<tr>
<td>POLI 300D2</td>
<td>3</td>
<td>Developing Areas/Revolution</td>
</tr>
<tr>
<td>POLI 319</td>
<td>3</td>
<td>Politics of Latin America</td>
</tr>
<tr>
<td>POLI 322</td>
<td>3</td>
<td>Political Change in South Asia</td>
</tr>
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<td>POLI 323</td>
<td>3</td>
<td>Developing Areas/China and Japan</td>
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<td>Developing Areas/Africa</td>
</tr>
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<td>POLI 338</td>
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<td>Developing Areas/Topics 1</td>
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<td>POLI 340</td>
<td>3</td>
<td>Developing Areas/Middle East</td>
</tr>
<tr>
<td>POLI 369</td>
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<td>Politics of Southeast Asia</td>
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### International Relations

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<tr>
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<tr>
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<td>International Politics of Economic Relations</td>
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<td>International Politics: State Behaviour</td>
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<td>Foreign Policy: The Middle East</td>
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<td>Canadian Foreign Policy</td>
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<tr>
<td>POLI 344</td>
<td>3</td>
<td>Foreign Policy: Europe</td>
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<tr>
<td>POLI 345</td>
<td>3</td>
<td>International Organizations</td>
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<td>POLI 346</td>
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<td>POLI 347</td>
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<td>Arab-Israel Conflict, Crisis, Peace</td>
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<td>POLI 349</td>
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<td>POLI 362</td>
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<td>POLI 440</td>
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</table>
The Honours Political Science program consists of 54 credits, of which 48 must be in Political Science. The remaining 6 credits must be in related social studies disciplines and must be taken at the 300 or 400 level.

To enter, remain and graduate in Honours, students must achieve/maintain a 3.3 average in their political science courses and more than half of the political science grades must be at the B+ level or higher. According to Faculty regulations, Honours students must maintain a minimum CGPA of 3.00 in general.

To be awarded First Class Honours at graduation, in addition to the Faculty requirement of a 3.50 CGPA, students must achieve a 3.6 average in their political science courses and more than half of political science grades must be at the A- level or higher. All political science courses taken at McGill are counted in determining a student's standing. (The specific criteria are given in the brochure "Major and Honours Programs in Political Science", which may be found on the Department website http://www.mcgill.ca/politicalscience/.) To be awarded Honours at graduation, students must be registered in the Honours program in their final year. At graduation, students' Honours standing will be determined by their overall record in the Honours program.

Students may enter the Honours program at the start of U2.

**Required Course (3 credits)**

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<tr>
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<td>Techniques of Empirical Research</td>
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**Complementary Courses (51 credits)**

51 credits of complementary courses selected with the following specifications.
45 credits of Political Science (POLI) and 6 credits at the 300 or 400 level in related disciplines* (e.g., Anthropology (ANTH), Canadian Studies (CANS), East Asian Studies (EAST), Economics (ECON), Geography (GEOG), History (HIST), Middle East Studies (MEST), Philosophy (PHIL), Psychology (PSYC), Quebec Studies (QCST), Sociology (SOCI)).

* Note: Students who believe that a case can be made for certain courses not included above, may request approval from the Honours Adviser by submitting a written appeal. With respect to Interdisciplinary programs (Canadian Studies, East Asian Studies, Middle East Studies, Quebec Studies etc.) only courses with the program's subject code (CANS, EAST, MEST, QCST) are eligible to be counted toward the Honours program.

A maximum of 18 credits may be at the 200 level.

At least 3 credits must be taken in Political Theory (see the course list for this field below).

No more than one-half of a student's political science credits may be in any one field (Canadian Politics, Comparative Politics (Developed Areas and Developing Areas), International Relations, Political Theory). However, if the field is Comparative Politics and if courses are taken in both Developed Areas and Developing Areas, the maximum is 30 credits. Refer to the lists below for course choices in each field.

12 credits of political science must be at the 400 level or above including one 500 level Honours Seminar or a 600-level Graduate Seminar. This one-quarter rule may be satisfied by taking one 400-, one 500-, and one 600-level course. Refer to the lists below for course choices at the 400 and 500 levels in each field. Consult the Department website (http://www.mcgill.ca/politicalscience/courses/graduate/) for 600-level course choices.

### Canadian Politics

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<td>La vie politique québécoise</td>
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### Comparative Politics - Developed Areas
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**Comparative Politics - Developing Areas**

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POLI 369  (3)  Politics of Southeast Asia
POLI 421  (3)  Social Movements in Canada
POLI 422  (3)  Developing Areas/Topics 2
POLI 423  (3)  Politics of Ethno-Nationalism
POLI 429  (3)  The Politics of South Africa
POLI 435  (3)  Identity and Inequality
POLI 450  (3)  Peacebuilding
POLI 471  (3)  Democracy in the Modern World
POLI 472  (3)  Developing Areas/Social Movements
POLI 473  (3)  Democracy and the Market
POLI 474  (3)  Inequality and Development
POLI 522  (3)  Seminar: Developing Areas

International Relations

POLI 243  (3)  International Politics of Economic Relations
POLI 244  (3)  International Politics: State Behaviour
POLI 341  (3)  Foreign Policy: The Middle East
POLI 342  (3)  Canadian Foreign Policy
POLI 344  (3)  Foreign Policy: Europe
POLI 345  (3)  International Organizations
POLI 346  (3)  American Foreign Policy
POLI 347  (3)  Arab-Israel Conflict, Crisis, Peace
POLI 349  (3)  Foreign Policy: Asia
POLI 351  (3)  The Causes of Major Wars
POLI 354  (3)  Approaches to International Political Economy
POLI 359  (3)  Topics in International Politics 1
POLI 360  (3)  Security: War and Peace
POLI 362  (3)  Political Theory and International Relations
POLI 440  (3)  Civil-Military Relations
POLI 441  (3)  IPE: Trade
POLI 442  (3)  International Relations of Ethnic Conflict
POLI 444  (3)  Topics in International Politics 2
POLI 445  (3)  International Political Economy: Monetary Relations
POLI 450  (3)  Peacebuilding
POLI 451  (3)  The European Union
POLI 575  (3)  Seminar: International Politics

Political Theory

* Note: Courses that may be used to complete the requirement for 3 credits in Political Theory are marked with an asterisk (“*”) in the list below.

POLI 231*  (3)  Introduction to Political Theory
POLI 232*  (3)  Modern Political Thought
POLI 333*  (3)  Western Political Theory 1
Bachelor of Arts (B.A.) - Joint Honours Component Political Science (36 credits)

Students who wish to study at the Honours level in two Arts disciplines may apply to combine Joint Honours Program components from two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Prior to registering for each Joint Honours component, students should consult an adviser in each department for approval of their course selection and their interdisciplinary research project (if applicable).

To enter, remain and graduate in Joint Honours, students must achieve/maintain a 3.3 average in their political science courses and more than half of the political science grades must be at the B+ level or higher. According to Faculty regulations, Joint Honours students must maintain a minimum CGPA of 3.00 in general. In addition to meeting these Political Science requirements, students must meet the requirements set forth by the other department.

To be awarded First Class Joint Honours at graduation, in addition to the Faculty requirement of a 3.50 CGPA, students must achieve a 3.6 average in their political science courses and more than half of political science grades must be at the A- level or higher. All political science courses taken at McGill are counted in determining a student's standing. (The specific criteria are given in the brochure "Major and Honours Programs in Political Science", which may be found on the Department website http://www.mcgill.ca/politicalscience/.) To be awarded Joint Honours at graduation, students must be registered in the Joint Honours program in their final year. At graduation, students' Joint Honours standing will be determined by their overall record in the Joint Honours program. In addition to meeting these Political Science requirements, students must meet the requirements set forth by the other department.

Students may enter the Joint Honours program in U1.

Required Course (3 credits)

POLI 311 is required except for those students whose other Joint Honours component is either Economics or Sociology. These students may be authorized to take an equivalent social science methods course in Economics or Sociology. If so, they must take 3 credits in Political Theory. Refer to the Political Theory course list below for appropriate courses.

POLI 311 (3) Techniques of Empirical Research

Complementary Courses (33 credits)

33 credits of complementary courses selected with the following specifications.

No more than one-half (18 credits) of a student's political science credits may be in any one field (Canadian Politics, Comparative Politics (Developed Areas and Developing Areas), International Relations, Political Theory). However, if the field is Comparative Politics and if courses are taken in both Developed Areas and Developing Areas, the maximum is 21 credits. Refer to the lists below for course choices in each field.

One quarter (9 credits) of political science credits must be at the 400-level or above including one 500-level Honours Seminar or one 600-level Graduate Seminar. This one-quarter rule may be satisfied by taking a 500-level Honours Seminar and a 600-level Graduate Seminar. Refer to the lists below for course choices at the 400 and 500 levels in each field. Consult the Department website (http://www.mcgill.ca/politicalscience/courses/graduate/) for 600-level course choices.

No more than 15 credits of political science may be at the 200 level. Students may not take 200-level political science courses in their final year.

Canadian Politics

POLI 221 (3) Government of Canada
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**Comparative Politics - Developed Areas**

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**Comparative Politics - Developing Areas**

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## International Relations

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## Political Theory

* Note: Courses marked with an asterisk ("*") in the list below may be used to complete the 3 credits of Political Theory by those students exempted from POLI 311.

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3.11.43 Psychology (PSYC)

3.11.43.1 Location

Stewart Biology Building, Room W8/1
1205 Dr. Penfield Avenue
Montreal, Quebec H3A 1B1

Telephone: 514-398-6100
Fax: 514-398-4896
Email: info@psych.mcgill.ca
Website: www.psych.mcgill.ca

3.11.43.2 About Psychology

The Psychology department offers programs in both Arts and Science. For a list of teaching staff and an outline of the nature of Psychology, refer to Faculty of Science > Psychology (PSYC). Programs which may be taken by Arts students are described in this section, those listed under the Faculty of Science may be taken by Science students only.

Note: The B.A. (or B.Sc.) with a major concentration or honours degree in psychology is not a professional qualification. It does not qualify the individual to carry on professional work in psychology.

3.11.43.3 Information Meetings for New Students

All new students entering the Psychology undergraduate program are required to attend an information meeting prior to registration. Students planning to pursue a Bachelor of Arts, or a Bachelor of Arts and Science, with a major concentration in Psychology must attend one of these meetings. Newly admitted students from CEGEPs should attend the information session on Wednesday, June 15th at 11:30 a.m. in room N2/2 of the Stewart Biology Building. There will be an identical information session on Tuesday, August 30th at 9:30 a.m. in room N2/2 in the Stewart Biology Building for all other students, and for any CEGEP students who could not attend the earlier meeting. Students accepted into the Bachelor of Science program must attend a different information meeting. (For details, see Faculty of Science > Psychology (PSYC).) At this meeting, Paola Carvajal, the Academic Adviser, will explain the requirements of the Department's programs. Incoming students will have an opportunity to ask questions and receive advice on how to plan their courses. After this meeting, students will make appointments for individual advising sessions and fill out their Study Plan form for registration. Entering students must bring their letter of acceptance and a copy of their collegial transcript(s). They will also need to have consulted this publication and a preliminary class schedule before their individual advising session. Students will also find the Psychology Department Handbook helpful. It contains more detailed descriptions of Psychology courses and provides guidelines for how students might pursue particular areas of interest. The handbook is available on the Department website: www.psych.mcgill.ca/ugrad/ugradm.htm.

Students entering the Psychology program in January are strongly encouraged to visit the Academic Adviser, Paola Carvajal, in early December to clarify their course selections.

3.11.43.4 Bachelor of Arts (B.A.) - Minor Concentration Psychology (18 credits)

Students registered in a Bachelor of Arts program in another department may pursue the Minor Concentration Psychology. This Minor concentration is expandable for students who may wish to transfer into the Major Concentration Psychology at a later date.

Required Background

Students are required to complete a course in Introductory Psychology either at the collegial or freshman level. Students who have not previously completed CEGEP Psychology 350-101 or 350-102 or equivalent are required to complete PSYC 100 during the first year of study at McGill.

Program Prerequisite

PSYC 100 (3) Introduction to Psychology

Complementary Courses (18 credits)

6 credits selected from:

PSYC 204 (3) Introduction to Psychological Statistics
 PSYC 211   (3)  Introductory Behavioural Neuroscience  
 PSYC 212   (3)  Perception  
 PSYC 213   (3)  Cognition  
 PSYC 215   (3)  Social Psychology  

12 credits in Psychology at the 300 level or above.

**3.11.43.5 Bachelor of Arts (B.A.) – Minor Concentration Behavioural Science (18 credits)**

**Revision, August 2011. Start of revision.**

Restricted to students registered in the Major Concentration Psychology.

Students who wish to go on to graduate training in Psychology, and those who may wish to apply for membership in the Ordre des Psychologues du Québec (once the additional graduate requirements of the Ordre have been completed), are advised to take the following supplementary Minor Concentration Behavioural Science.

Note that this counts as a second minor concentration, and is open only to students registered in the Major Concentration Psychology. A first minor concentration must also be completed in a discipline other than Psychology.

**Complementary Courses (18 credits)**

18 credits selected as follows:

3 credits in Psychology from List A - (Behavioural Neuroscience, Cognition and Quantitive Methods)  
3 credits in Psychology from List B - (Social, Health and Developmental Psychology)  
3 credits in Psychology at the 400 or 500 level  
9 credits at the 300 level or above from one or more of the following disciplines: Psychology (PSYC), Anthropology (ANTH), Linguistics (LING), or Sociology (SOCI).

**List A - (Behavioural Neuroscience, Cognition and Quantitive Methods)**

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**List B - (Social, Health and Developmental Psychology)**

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PSYC 511 (3) Infant Competence
PSYC 512 (3) Advanced Personality Seminar
PSYC 528 (3) Vulnerability to Depression
PSYC 530 (3) Applied Topics in Deafness
PSYC 533 (3) International Health Psychology
PSYC 535 (3) Advanced Topics in Social Psychology

Unclassified Courses
Students may also select complementary courses from the research and topics courses below:

PSYC 395 (6) Psychology Research Project 1
PSYC 450D1 (4.5) Research Project and Seminar
PSYC 450D2 (4.5) Research Project and Seminar
PSYC 488D1 (1.5) Special Topics Seminar
PSYC 488D2 (1.5) Special Topics Seminar
PSYC 492 (3) Special Topics Seminar 1
PSYC 493 (3) Special Topics Seminar 2
PSYC 494D1 (4.5) Psychology Research Project
PSYC 494D2 (4.5) Psychology Research Project
PSYC 495 (6) Psychology Research Project 2
PSYC 499 (1) Reading Project

Revision, August 2011. End of revision.

3.11.43.6 Bachelor of Arts (B.A.) – Major Concentration Psychology (36 credits)
Revision, August 2011. Start of revision.

The Major Concentration Psychology does not provide sufficient undergraduate background to enable students to apply for membership in the Ordre des Psychologues du Québec, even once the additional graduate requirements of the Ordre have been completed. Students who are interested in practising psychology in Quebec are advised to also complete the Minor Concentration Behavioral Science.

Recommended Background for Quebec CEGEP Students

Students planning to apply to a Bachelor of Arts degree with a Major Concentration Psychology or a Bachelor of Arts and Science degree with a Major Concentration Psychology are advised to take courses in Introductory Psychology and Human Biology at the collegial level.

Program Prerequisites

Students planning to enter the Major Concentration Psychology program are required to complete courses in Introductory Psychology and Human Biology at the collegial level or in their first year of study at McGill University.

Students who have completed 350-101 or 350-102 in CEGEP are exempt from the PSYC 100 requirement.

Bachelor of Arts students are required to complete BIOL 115 or BIOL 111 or BIOL 112 during their first year. Students who have completed one of Biology 101-301, 101-401, 101-911, or 101-921 in CEGEP are exempt from the Biology requirement.

BIOL 111 (3) Principles: Organismal Biology
BIOL 112 (3) Cell and Molecular Biology
BIOL 115 (3) Essential Biology
PSYC 100 (3) Introduction to Psychology

Required Courses (18 credits)

* Advising note for PSYC 204: Students who have completed in CEGEP either Mathematics 201-307 or 201-337 or equivalent, or the combination of Quantitative Methods 360-300 with Mathematics 201-300, and who obtained a minimum grade of 75%, are exempt from the U1 required course PSYC 204.
Bachelor of Arts students exempt from PSYC 204 replace this course with 3 credits at the 300 level or above in Psychology (PSYC), Anthropology (ANTH), Linguistics (LING), or Sociology (SOCI).

Bachelor of Arts and Science students exempt from PSYC 204 replace this course with 3 credits in Psychology (PSYC) at the 300 level or above.

<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>PSYC 211</td>
<td>3</td>
<td>Introductory Behavioural Neuroscience</td>
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<td>PSYC 212</td>
<td>3</td>
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<tr>
<td>PSYC 213</td>
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<td>Cognition</td>
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<td>PSYC 215</td>
<td>3</td>
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</tr>
<tr>
<td>PSYC 305**</td>
<td>3</td>
<td>Statistics for Experimental Design</td>
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</table>

** Note: Students who wish to apply to the Honours program in Psychology must complete the required courses above apart from PSYC 305 in their U1 year to be eligible for admission. Students who have been exempted from PSYC 204 are advised to complete PSYC 305 in U1. All students must complete a minimum of 27 graded credits in U1 to be eligible for admission to the Honours program. For additional information about applying to Honours, please refer to the Honours program description.

**Complementary Courses (18 credits)**

18 credits selected as follows:

- 3 credits in Psychology from List A - (Behavioural Neuroscience, Cognition and Quantitive Methods)
- 3 credits in Psychology from List B - (Social, Health and Developmental Psychology)
- 12 credits in Psychology with at least 6 credits at the 400 or 500 level.

**List A - (Behavioural Neuroscience, Cognition and Quantitive Methods)**

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<thead>
<tr>
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<tr>
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<td>Animal Learning &amp; Theory</td>
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<td>PSYC 302</td>
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<td>PSYC 310</td>
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<td>Intelligence</td>
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<tr>
<td>PSYC 311</td>
<td>3</td>
<td>Human Cognition and the Brain</td>
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<td>PSYC 329</td>
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<tr>
<td>PSYC 340</td>
<td>3</td>
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<td>PSYC 341</td>
<td>3</td>
<td>The Psychology of Bilingualism</td>
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<td>Laboratory in Human Perception</td>
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<td>3</td>
<td>Modern Psychology in Historical Perspective</td>
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<td>PSYC 406</td>
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<td>Human Factors Research and Techniques</td>
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<td>PSYC 470</td>
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<td>PSYC 501</td>
<td>3</td>
<td>Auditory Perception</td>
</tr>
<tr>
<td>PSYC 502</td>
<td>3</td>
<td>Psychoneuroendocrinology</td>
</tr>
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</table>
PSYC 506 (3)  Cognitive Neuroscience of Attention
PSYC 510 (3)  Statistical Analysis of Tests
PSYC 514 (3)  Neurobiology of Learning and Memory
PSYC 522 (3)  Neurochemistry and Behaviour
PSYC 526 (3)  Advances in Visual Perception
PSYC 529 (3)  Music Cognition
PSYC 531 (3)  Structural Equation Models
PSYC 532 (3)  Cognitive Science
PSYC 536 (3)  Correlational Techniques
PSYC 537 (3)  Advanced Seminar in Psychology of Language
PSYC 541 (3)  Multilevel Modelling
PSYC 545 (3)  Topics in Language Acquisition
PSYC 561 (3)  Methods: Developmental Psycholinguistics
PSYC 562 (3)  Measurement of Psychological Processes

List B - (Social, Health and Developmental Psychology)

PSYC 304 (3)  Child Development
PSYC 316 (3)  Psychology of Deafness
PSYC 328 (3)  Health Psychology
PSYC 331 (3)  Inter-Group Relations
PSYC 332 (3)  Introduction to Personality
PSYC 333 (3)  Personality and Social Psychology
PSYC 337 (3)  Introduction: Abnormal Psychology 1
PSYC 338 (3)  Introduction: Abnormal Psychology 2
PSYC 343 (3)  Language Learning in Children
PSYC 351 (3)  Research Methods in Social Psychology
PSYC 408 (3)  Principles of Cognitive Behaviour Therapy
PSYC 409 (3)  Positive Psychology
PSYC 412 (3)  Developmental Psychopathology
PSYC 414 (3)  Social Development
PSYC 416 (3)  Topics in Child Development
PSYC 436 (3)  Human Sexuality and Its Problems
PSYC 471 (3)  Human Motivation
PSYC 473 (3)  Social Cognition and the Self
PSYC 474 (3)  Interpersonal Relationships
PSYC 483 (3)  Seminar in Experimental Psychopathology
PSYC 491D1 (3)  Advanced Study: Behavioural Disorders
PSYC 491D2 (3)  Advanced Study: Behavioural Disorders
PSYC 507 (3)  Emotions, Stress, and Illness
PSYC 509 (3)  Diverse Clinical Populations
PSYC 511 (3)  Infant Competence
PSYC 512 (3)  Advanced Personality Seminar
Vulnerability to Depression (3)  
PSYC 528

Applied Topics in Deafness (3)  
PSYC 530

International Health Psychology (3)  
PSYC 533

Advanced Topics in Social Psychology (3)  
PSYC 535

**Unclassified Courses**

Students may also select complementary courses from the research and topics courses below:

- PSYC 395 (6) Psychology Research Project 1
- PSYC 450D1 (4.5) Research Project and Seminar
- PSYC 450D2 (4.5) Research Project and Seminar
- PSYC 488D1 (1.5) Special Topics Seminar
- PSYC 488D2 (1.5) Special Topics Seminar
- PSYC 492 (3) Special Topics Seminar 1
- PSYC 493 (3) Special Topics Seminar 2
- PSYC 494D1 (4.5) Psychology Research Project
- PSYC 494D2 (4.5) Psychology Research Project
- PSYC 495 (6) Psychology Research Project 2
- PSYC 499 (1) Reading Project

**Revision, August 2011. End of revision.**

**3.11.43.7 Bachelor of Arts (B.A.) – Honours Psychology (60 credits)**

**Revision, August 2011. Start of revision.**

Honours Psychology prepares students for graduate study, and so emphasizes practice in the research techniques which are used in graduate school and professionally later on. Students are normally accepted into Honours at the beginning of their U2 year, and the two-year sequence of Honours courses continues through U3.

Admission to Honours is selective. Students with a cumulative grade point average of 3.00 or better are eligible to apply; since enrolment is limited the usual GPA for admission to this program is 3.50. Students must complete a minimum of 27 graded credits in two terms in their U1 year to be eligible to apply to the Honours program. These credits must include: PSYC 204, PSYC 211, PSYC 212, PSYC 213 and PSYC 215. Students are advised to complete PSYC 305 in their U1 year to apply to the Honours program. Once in the Honours program, the student must obtain a GPA of 3.00 in the U2 year in order to continue in the program for U3. Students in the Honours program are encouraged to complete a minimum of 27 graded credits per academic year. This is also the minimum number of credits required to be eligible for fellowships and awards.

Applications can be obtained from the Undergraduate Office of the Department of Psychology, Room N7/9A, Stewart Biological Sciences Building. The applications must be completed and returned to the Undergraduate Office by the deadline stated on the application (generally before August 1 for September admission). Candidates will be informed of the Department's decision via email before classes begin in September.

Students should note that awarding of the Honours degree will depend on both cumulative grade point average and a minimum grade of B on PSYC 380D1/PSYC 380D2, PSYC 482. "First Class Honours" is awarded to students who obtain a minimum CGPA of 3.50 and a minimum grade of A+ in the required honours courses, namely PSYC 380D1/PSYC 380D2, PSYC 482. "Honours" is awarded to students with a minimum CGPA of 3.00 and a minimum grade of B in the required honours courses, namely PSYC 380D1/PSYC 380D2, PSYC 482. Moreover, the awarding of the Honours degree normally requires completion of two full years of study, U2 and U3, in the Honours program in the Psychology Department. Students with particularly strong academic records may be admitted for the U3 year only on the basis of their marks and research experience. These students must complete all Honours program requirements.

**Program Prerequisites**

Students planning on entering the Honours Psychology program are required to complete Introductory Psychology at the collegial level or in their first year of study at McGill University. Students are also strongly encouraged to complete a course in Human Biology.

Students who have completed 350-101 or 350-102 in CEGEP are exempt from the PSYC 100 requirement.

Bachelor of Arts students should complete BIOL 115 or BIOL 111 or BIOL 112 during their first year, unless they have already completed one of Biology 101-301, 101-401, 101-911, or 101-921 in CEGEP.

- BIOL 111 (3) Principles: Organismal Biology
- BIOL 112 (3) Cell and Molecular Biology
BIOL 115  (3)  Essential Biology
PSYC 100  (3)  Introduction to Psychology

U1 Required Courses (18 credits)
* Advising note for PSYC 204: Students who have completed in CEGEP either Mathematics 201-307 or 201-337 or equivalent, or the combination of Quantitative Methods 360-300 with Mathematics 201-300, and who obtained a minimum grade of 75%, are exempt from the U1 required course PSYC 204.
Bachelor of Arts students will replace this requirement with 3 credits at the 300 level in one of the following disciplines: Psychology (PSYC), Anthropology (ANTH), Linguistics (LING), or Sociology (SOCI).
Bachelor of Arts and Science students will replace this requirement with 3 credits in Psychology at the 300 level or above.
** Note: PSYC 305 may be taken in U1 or U2.

PSYC 204*  (3)  Introduction to Psychological Statistics
PSYC 211  (3)  Introductory Behavioural Neuroscience
PSYC 212  (3)  Perception
PSYC 213  (3)  Cognition
PSYC 215  (3)  Social Psychology
PSYC 305**  (3)  Statistics for Experimental Design

U2 Required Courses (9 credits)

PSYC 380D1  (4.5)  Honours Research Project Seminar
PSYC 380D2  (4.5)  Honours Research Project Seminar

U3 Required Course (3 credits)

PSYC 482  (3)  Advanced Honours Seminar

Complementary Courses (30 credits)

30 credits of complementary courses with the following specifications:

12 credits to be selected from the list below and any Psychology course at the 500 level.

PSYC 403  (3)  Modern Psychology in Historical Perspective
PSYC 483  (3)  Seminar in Experimental Psychopathology
PSYC 495  (6)  Psychology Research Project 2
PSYC 496  (6)  Senior Honours Research 1
PSYC 497  (6)  Senior Honours Research 2
PSYC 498D1  (4.5)  Senior Honours Research
PSYC 498D2  (4.5)  Senior Honours Research

List A - (Behavioural Neuroscience, Cognition and Quantitive Methods)
6 credits in Psychology from List A:

NSCI 201  (3)  Introduction to Neuroscience 2
PSYC 301  (3)  Animal Learning & Theory
PSYC 302  (3)  The Psychology of Pain
PSYC 310  (3)  Intelligence
PSYC 311  (3)  Human Cognition and the Brain
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<td>Genes and Behaviour</td>
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<td>PSYC 318</td>
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<td>Behavioural Neuroscience 2</td>
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<tr>
<td>PSYC 329</td>
<td>3</td>
<td>Introduction to Auditory Cognition</td>
</tr>
<tr>
<td>PSYC 340</td>
<td>3</td>
<td>Psychology of Language</td>
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<td>PSYC 562</td>
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<td>Measurement of Psychological Processes</td>
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**List B - (Social, Health and Developmental Psychology)**

6 credits in Psychology from List B:

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<tr>
<td>PSYC 316</td>
<td>3</td>
<td>Psychology of Deafness</td>
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<td>PSYC 328</td>
<td>3</td>
<td>Health Psychology</td>
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<td>PSYC 331</td>
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<td>Inter-Group Relations</td>
</tr>
<tr>
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<td>3</td>
<td>Introduction to Personality</td>
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<td>PSYC 333</td>
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<td>Personality and Social Psychology</td>
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<td>Positive Psychology</td>
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<td>Social Cognition and the Self</td>
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<td>Diverse Clinical Populations</td>
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</tr>
<tr>
<td>PSYC 535</td>
<td>Advanced Topics in Social Psychology</td>
<td></td>
</tr>
</tbody>
</table>

6 credits at the 300 level or above selected from the following disciplines:
Anthropology (ANTH), Linguistics (LING), Psychology (PSYC), or Sociology (SOCI).

**Revision, August 2011. End of revision.**

**3.11.43.8 Bachelor of Arts (B.A.) - Joint Honours Component Psychology (36 credits)**

Students who wish to study at the Honours level in two Arts disciplines may apply to combine Joint Honours program components from two Arts disciplines.

For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable).

Students should note that awarding of the Joint Honours degree will depend on both cumulative grade point average and a minimum grade of B on PSYC 380D1/PSYC 380D2, PSYC 482. "First Class Honours" is awarded to students who obtain a minimum CGPA of 3.50 and a minimum grade of A- in the required honours courses (i.e: PSYC 380D1/D2, PSYC 482). "Honours" is awarded to students with a minimum CGPA of 3.00 and a minimum grade of B in the required honours courses.

In addition to the requirements of the Joint Honours Component Psychology, students must also complete all requirements of their other Joint Honours component.

Admission to the Joint Honours component is selective. Students with a cumulative grade point average of 3.00 or higher are eligible to apply; however, normally only students with a U1 GPA above 3.50 are admitted. Students must complete a minimum of 27 graded credits in two terms in their U1 year to be eligible to apply. Once in the Joint Honours component, students must obtain a GPA of 3.00 in the U2 year in order to continue in the program for U3.

Students in the Joint Honours component are encouraged to complete a minimum of 27 graded credits per academic year. This is also the minimum number of credits required to be eligible for fellowships and awards.

Students may apply to the Joint Honours component upon completion of the U1 year. Eligible students must have completed the following Psychology courses: PSYC 204, PSYC 211, PSYC 212, PSYC 213 and PSYC 215. Students are advised to complete PSYC 305 in their U1 year.
Applications can be obtained from the Undergraduate Office of the Department of Psychology, Room N7/9A, Stewart Biological Sciences Building. The applications must be completed and returned to the Undergraduate Office by August 1 for September admission. Candidates will be informed of the Department's decision via email before classes begin in September.

**Program Prerequisites**

Students planning on entering the Joint Honours Component Psychology program are required to complete Introductory Psychology; a course in Human Biology is strongly recommended.

Students who have not previously completed Psychology 350-101 or 350-102 in CEGEP are required to register for PSYC 100 during their U1 year. Bachelor of Arts students who have not completed one of Biology 101-301, 101-401, 101-911 or 101-921 in CEGEP should complete one of BIOL 115, BIOL 111 or BIOL 112 during their U1 year. Students who enter as Freshmen may take these courses in U0.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOL 111</td>
<td>Principles: Organismal Biology</td>
<td>(3)</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>Cell and Molecular Biology</td>
<td>(3)</td>
</tr>
<tr>
<td>BIOL 115</td>
<td>Essential Biology</td>
<td>(3)</td>
</tr>
<tr>
<td>PSYC 100</td>
<td>Introduction to Psychology</td>
<td>(3)</td>
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</tbody>
</table>

**U1 Required Courses (18 credits)**

* Advising note for PSYC 204: Students who have completed in CEGEP either Mathematics 201-307 or 201-337 or equivalent, or the combination of Quantitative Methods 360-300 with Mathematics 201-300, and who obtained a minimum grade of 75%, are exempt from the U1 required course PSYC 204.

Bachelor of Arts students will replace this requirement with 3 credits at the 300 level in one of the following disciplines: Psychology (PSYC), Anthropology (ANTH), Linguistics (LING) or Sociology (SOCI).

Bachelor of Arts and Science students will replace this requirement with 3 credits in Psychology at the 300-level or above.

** Note: PSYC 305 may be taken in U1 or U2.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>PSYC 204*</td>
<td>Introduction to Psychological Statistics</td>
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</tr>
<tr>
<td>PSYC 211</td>
<td>Introductory Behavioural Neuroscience</td>
<td>(3)</td>
</tr>
<tr>
<td>PSYC 212</td>
<td>Perception</td>
<td>(3)</td>
</tr>
<tr>
<td>PSYC 213</td>
<td>Cognition</td>
<td>(3)</td>
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<td>PSYC 215</td>
<td>Social Psychology</td>
<td>(3)</td>
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<tr>
<td>PSYC 305**</td>
<td>Statistics for Experimental Design</td>
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</table>

**U2 Required Courses (9 credits)**

<table>
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<tr>
<td>PSYC 380D1</td>
<td>Honours Research Project Seminar</td>
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<tr>
<td>PSYC 380D2</td>
<td>Honours Research Project Seminar</td>
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**U3 Required Course (3 credits)**

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<tbody>
<tr>
<td>PSYC 482</td>
<td>Advanced Honours Seminar</td>
<td>(3)</td>
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</table>

**Complementary Courses (6 credits)**

3 credits in Psychology at the 300 level or above, and
3 credits in Psychology at the 400 or 500 level.

**3.11.44 Quebec Studies/Études sur le Québec (QCST)**

**3.11.44.1 Location**

Ferrier Building, Room 332
840 Dr. Penfield Avenue
Montreal, Quebec H3A 1A4
3.11.44.2 Généralités : Études sur le Québec

Le Programme d'études sur le Québec veut favoriser la recherche et la formation multidisciplinaires en études québécoises.

Avec l'appui des départements, la concentration Mineur et la concentration Majeur en études sur le Québec sont constituées l'une et l'autre d'une suite agencée de cours ayant pour but de fournir un enseignement interdisciplinaire aussi complet que possible sur la société québécoise à l'intérieur d'un cadre canadien et international.

Sauf les cours Quebec Culture and Society (QCST 300), Travaux dirigés (QCST 472D1/QCST 472D2) et le séminaire Contemporary Issues in Quebec (QCST 440), les cours compris dans la concentration Majeur ou la concentration Mineur sont sous la responsabilité des divers départements. Pour connaître la description de ces cours et, le cas échéant, les conditions d'admission, l'étudiant(e) est donc invité(e) à se reporter aux autres sections de cette publication et, au besoin, à consulter les départements concernés, d'autant plus que tous les cours ne se donnent pas nécessairement à chaque année. Veuillez noter que les conseillers pédagogiques ou les directeurs de programmes peuvent suggérer l'inscription à un cours sans toutefois imposer ce choix. La décision finale revient à l'étudiant(e) en ce qui concerne l'inscription à un cours en autant que l'étudiant(e) répond aux conditions d'admission pour ce cours.

Le titre de chaque cours indique s'il est donné en français ou en anglais, mais les travaux et examens peuvent toujours être rédigés dans l'une ou l'autre de ces deux langues (sauf au Département de langue et littérature françaises, où le français est de rigueur).

3.11.44.3 About Quebec Studies

The Quebec Studies program is intended to stimulate interdisciplinary studies and exchanges centering on Quebec society.

With departmental support, a major concentration and a minor concentration are offered, both of which consist of a coherent series of courses providing an interdisciplinary perspective on Quebec society in a Canadian and an international context.

Except for the general course Quebec Culture and Society (QCST 300), the Tutorial (QCST 472D1/QCST 472D2), and the seminar Contemporary Issues in Quebec (QCST 440), courses included in the Major concentration or Minor concentration are the responsibility of the departments. To obtain a complete description of these courses and the admission requirements (where applicable), students should read the relevant sections of this publication and, if necessary, consult with the departments concerned, bearing in mind that not all courses are available in any given year. Please take note that an adviser or a director of a program can recommend registration in a course without imposing this choice. The final decision belongs to the student if the student has successfully completed the course prerequisites.

The title of each course indicates whether it is given in French or English, but term papers and exams can be written in either of these two languages (except in the French Language and Literature Department, where French is the rule).

3.11.44.4 Quebec Studies/Études sur le Québec (QCST) Faculty

<table>
<thead>
<tr>
<th>Role</th>
<th>Name and Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director</td>
<td>Jarrett Rudy (History)</td>
</tr>
<tr>
<td>Coordinator</td>
<td>Stéphan Gervais (Quebec Studies)</td>
</tr>
<tr>
<td>Program Committee Chair</td>
<td>Catherine Desbarats (History)</td>
</tr>
<tr>
<td>Program Committee</td>
<td>Éric Bélanger (Political Science)</td>
</tr>
<tr>
<td></td>
<td>Pascal Brissette (French Language and Literature)</td>
</tr>
</tbody>
</table>
Program Committee

Catherine Leclerc (French Language and Literature)
Jarrett Rudy (History) (Director of Quebec Studies Program)
Emine Sarigollu (Desautels Faculty of Management)
Christa Scholtz (Political Science)
William Straw (Art History & Communication Studies)

3.11.44.5 Bachelor of Arts (B.A.) - Minor Concentration Quebec Studies / La concentration Mineur en Études sur le Québec (18 credits)

The goal of the Minor Concentration Quebec Studies is to give students a multidisciplinary overview of Quebec realities. Students are encouraged to complete this program alongside their studies in History, Political Science, French Language and Literature, or Canadian Studies.

The Minor Concentration Quebec Studies may be expanded to the Major concentration.

Required Courses / Cours Obligatoires (6 credits)

De façon usuelle, les cours obligatoires (6 crédits) sont complétés selon la séquence suivante : QCST 300 (3 crédits) en U1 et QCST 440 (3 crédits) en U2 ou en U3. Les cours complémentaires (12 crédits) peuvent être complétés en U1, U2 ou en U3.

Normally, the required courses (6 credits) are completed in the following order: QCST 300 (3 credits) in U1 and QCST 440 (3 credits) in U2 or in U3. The complementary courses (12 credits) can be completed in U1, U2, or U3.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>QCST 300</td>
<td>(3)</td>
<td>Quebec Culture and Society</td>
</tr>
<tr>
<td>QCST 440</td>
<td>(3)</td>
<td>Contemporary Issues in Quebec</td>
</tr>
</tbody>
</table>

Complementary Courses / Cours Complémentaires (12 credits)

De ces 12 crédits, 6 doivent être des cours provenant du tronc commun ou des cours approuvés par la direction du programme.

At least 6 of the 12 complementary credits must be at the 300 level or above.

The selection of courses will be made in consultation with the Program Director and will vary depending on the major concentration or honours program of each student.

Core Courses / Cours inscrits au tronc commun

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>FREN 252</td>
<td>(3)</td>
<td>Littérature québécoise</td>
</tr>
<tr>
<td>FRSL 216</td>
<td>(3)</td>
<td>Découvrons Montréal en français</td>
</tr>
<tr>
<td>HIST 303</td>
<td>(3)</td>
<td>History of Quebec</td>
</tr>
<tr>
<td>HIST 353</td>
<td>(3)</td>
<td>History of Montreal</td>
</tr>
<tr>
<td>POLI 226</td>
<td>(3)</td>
<td>La vie politique québécoise</td>
</tr>
<tr>
<td>POLI 336</td>
<td>(3)</td>
<td>Le Québec et le Canada</td>
</tr>
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</table>

Complementary Course Lists / Listes des cours complémentaires

Anthropology / Anthropologie

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>ANTH 317</td>
<td>(3)</td>
<td>Prehistory of North America</td>
</tr>
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</table>
ANTH 338 (3) Native Peoples of North America
ANTH 436 (3) North American Native Peoples

**Canadian Studies / Études sur le Canada**

CANS 200 (3) Introduction to the Study of Canada
CANS 202 (3) Canadian Cultures: Context and Issues
CANS 304 (3) Nationalism in Canada
CANS 306 (3) Issues in Native Studies
CANS 413 (3) Canada and Quebec Seminar

**English / Anglais**

ENGL 413 (3) Special Topics in Canadian Drama and Theatre

**French Language and Literature / Langue et littérature françaises**

FREN 252 (3) Littérature québécoise
FREN 315 (3) Cinéma québécois
FREN 329 (3) Civilisation québécoise
FREN 372 (3) Littérature québécoise 1
FREN 382 (3) Littérature québécoise 2
FREN 480 (3) Littérature québécoise contemporaine

**French as a Second Language / Français langue seconde**

FRSL 216 (3) Découvrons Montréal en français
FRSL 326 (3) Découvrons le Québec en français

**History / Histoire**

HIST 202 (3) Survey: Canada to 1867
HIST 203 (3) Survey: Canada since 1867
HIST 303 (3) History of Quebec
HIST 333 (3) Natives and French
HIST 334 (3) History of New France
HIST 353 (3) History of Montreal
HIST 403 (3) History of Quebec Institutions
HIST 483D1 (3) History of Montreal
HIST 483D2 (3) History of Montreal

**Political Science / Science politique**

POLI 221 (3) Government of Canada
POLI 222 (3) Political Process and Behaviour in Canada
POLI 226 (3) La vie politique québécoise
POLI 336 (3) Le Québec et le Canada
The goal of the Major Concentration Quebec Studies is to give students a comprehensive, multidisciplinary and in depth portrait of Quebec realities. Students are encouraged to complete this program by integrating it with disciplines such as History, Political Science, French Language and Literature, or Canadian Studies.

**Required Courses / Cours Obligatoires (12 credits)**

De façon usuelle, les cours obligatoires (12 crédits) sont complétés selon la séquence suivante : QCST 300 (3 crédits) en U1 et QCST 440 (3 crédits) en U2 et QCST 472D1/D2 (6 crédits) en U3. Les cours complémentaires (24 crédits) peuvent être complétés en U1, U2 ou en U3.

Normally, the required courses (12 credits) are completed in the following order: QCST 300 (3 credits) in U1, QCST 440 (3 credits) in U2, and QCST 472D1/D2 (6 credits) in U3. The complementary courses (24 credits) can be completed in U1, U2, or U3.

- QCST 300 (3) Quebec Culture and Society
- QCST 440 (3) Contemporary Issues in Quebec
- QCST 472D1 (3) Tutorial/Travaux dirigés
- QCST 472D2 (3) Tutorial/Travaux dirigés

**Complementary Courses / Cours Complémentaires (24 credits)**

De ces 24 crédits, 12 doivent être des cours provenant du tronc commun ou des cours approuvés par la direction du programme. 3 crédits doivent provenir d'un cours dont la langue d'enseignement est le français et peuvent provenir d'un cours de français langue seconde. Au moins 12 des 24 crédits complémentaires doivent être du niveau 300 ou supérieur.

Le choix de ces cours se fera en consultation avec le directeur du programme et variera selon le domaine de spécialisation de chaque étudiant(e).

Of these 24 credits, 12 credits must be core courses, or courses approved by the Program Director. 3 credits must be taught in the French language and can be chosen from French as a Second Language course offerings.

At least 12 of the 24 complementary credits must be at the 300 level or above.

The selection of courses will be made in consultation with the Program Director and will vary depending on the major concentration or honours program of each student.

**Core Courses / Cours inscrits au tronc commun**

- FREN 252 (3) Littérature québécoise
- FRSL 216 (3) Découvrons Montréal en français
- HIST 303 (3) History of Quebec
- HIST 353 (3) History of Montreal
- POLI 226 (3) La vie politique québécoise
- POLI 336 (3) Le Québec et le Canada
### Anthropology / Anthropologie

<table>
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<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>ANTH 317</td>
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<td>Prehistory of North America</td>
</tr>
<tr>
<td>ANTH 338</td>
<td>3</td>
<td>Native Peoples of North America</td>
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<tr>
<td>ANTH 436</td>
<td>3</td>
<td>North American Native Peoples</td>
</tr>
</tbody>
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### Canadian Studies / Études sur le Canada

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CANS 200</td>
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<td>Introduction to the Study of Canada</td>
</tr>
<tr>
<td>CANS 202</td>
<td>3</td>
<td>Canadian Cultures: Context and Issues</td>
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<td>CANS 304</td>
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<td>Nationalism in Canada</td>
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<td>3</td>
<td>Issues in Native Studies</td>
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<td>CANS 413</td>
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<td>Canada and Quebec Seminar</td>
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</table>

### English / Anglais

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<tr>
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<th>Credits</th>
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<tbody>
<tr>
<td>ENGL 413</td>
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<td>Special Topics in Canadian Drama and Theatre</td>
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</tbody>
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### French Language and Literature / Langue et littérature françaises

<table>
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<td>FREN 372</td>
<td>3</td>
<td>Littérature québécoise 1</td>
</tr>
<tr>
<td>FREN 382</td>
<td>3</td>
<td>Littérature québécoise 2</td>
</tr>
<tr>
<td>FREN 480</td>
<td>3</td>
<td>Littérature québécoise contemporaine</td>
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### French as a Second Language / Français langue seconde

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<thead>
<tr>
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<tr>
<td>FRSL 216</td>
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<tr>
<td>FRSL 326</td>
<td>3</td>
<td>Découvrons le Québec en français</td>
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### History / Histoire

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<tr>
<td>HIST 202</td>
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<td>Survey: Canada to 1867</td>
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<tr>
<td>HIST 203</td>
<td>3</td>
<td>Survey: Canada since 1867</td>
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<tr>
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### Political Science / Science politique

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<tr>
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</thead>
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<tr>
<td>POLI 221</td>
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<td>Government of Canada</td>
</tr>
<tr>
<td>POLI 222</td>
<td>3</td>
<td>Political Process and Behaviour in Canada</td>
</tr>
</tbody>
</table>
Religious Studies (RELG)

3.11.45.1 Location

William and Henry Birks Building
3520 University Street
Montreal, Quebec H3A 2A7

Telephone: 514-398-4121
Website: www.mcgill.ca/religiousstudies

3.11.45.2 Religious Studies Programs in Arts

Available within the Faculty of Arts are a major concentration and a minor concentration in World Religions, a major concentration in Scriptures and Interpretations, and a minor concentration in Scriptural Languages as well as an Honours and a Joint Honours program with two options: Western Religions and Asian Religions. These programs are administered by the Faculty of Arts and the general rules, regulations, and requirements of that Faculty apply to them.

Students interested in these programs can obtain information from the Faculty of Arts website at www.mcgill.ca/arts and the Religious Studies website, or from a Religious Studies B.A. adviser. For general information on Religious Studies programs, make an appointment to see an adviser by telephoning 514-398-4121 or visiting the Reception office in the Birks Building.

Admission to the B.A. program is granted according to criteria established by the Faculty of Arts.

Students interested in theology programs can find more information under Faculty of Religious Studies > Bachelor of Theology (B.Th.) and Faculty of Religious Studies > Master of Divinity (M.Div.).

3.11.45.3 Religious Studies Courses Available to Arts and Science Students

All courses listed in the Religious Studies section (RELG) are considered as courses in Arts and Science except for courses restricted to B.Th. or S.T.M. students and courses that require permission of the Chair of the B.Th. Committee.

3.11.45.4 Religious Studies (RELG) Faculty

Dean

Ellen B. Aitken; A.B.(Harv.), M.Div.(University of the South), Th.D.(Harv.)

Emeritus Professors

Gregory B. Baum; B.A.(McM.), M.A.(Ohio), D.Th.(Fribourg)
Maurice Boutin; B.A., B.A.(Montr.), D.Th.(Munich)
Robert C. Culley; B.D.(Knox, Tor.), M.A., Ph.D.(Tor.)
Joseph C. McLelland; B.A.(McM.), M.A.(Tor.), B.D.(Knox, Tor.), Ph.D.(Edin.), D.D.(Montr. Dio. Coll.; Knox, Tor.)
D. Runnalls; B.A.(Br. Col.), B.D.(McG.), Ph.D.(Tor.)
Frederik Wisse; Ing.(Utrecht), B.A., B.D.(Calvin, Mich.), Ph.D.(Claremont)
### Professors

- **Douglas B. Farrow;** B.R.E.(Providence), M.Div.(Grace), M.Th.(Regent), Ph.D.(Lond.) *(Christian Thought)*
- **W.J. Torrance Kirby;** B.A.(KCNS), M.A., D.Phil.(Oxf.) *(Ecclesiastical History)*
- **Arvind Sharma;** B.A.(Allahabad), M.A.(Syrac.), M.T.S., Ph.D.(Harv.) *(Henry Birks Professor of Comparative Religion)*
- **Katherine K. Young;** B.A.(Vermont), M.A.(Chic.), Ph.D.(McG.) *(James McGill Professor of Hinduism/Comparative Religion)*

### Associate Professors

- **Ellen B. Aitken;** A.B.(Harv.), M.Div.(University of the South), Th.D.(Harv.) *(Early Christian History and Literature)*
- **Gaëlle Fiasse;** B.A., M.A., Ph.D.(Louvain-le-Neuve) *(Ethics and Religious Ethics)* *(joint appt. with Department of Philosophy)*
- **G. Victor Hori;** B.A.(York), M.A.(Tor.), Ph.D.(Stan.) *(Japanese Religions)*
- **Devesh Soneji;** B.A.(Manit.), Ph.D.(McG.) *(South Asian Religion)*

### Assistant Professors

- **Lara Braitstein;** B.A., M.A.(McG.) *(Indo-Tibetan Buddhism)*
- **Daniel Cere;** B.A, M.A.(McG.), Ph.D.(C'dia) *(Religion, Ethics and Public Policy)*

### Faculty Lecturers

- **Jim Kanaris;** B.A.(C'dia), M.A., Ph.D.(McG.) *(Philosophy of Religion)*
- **Fabian Udoh;** B.Phil.(Institut de Philosophie, Kinshasa), S.T.B.(Pontificia Universitas Gregoriana), M.Phil.(Oxf.), Ph.D.(Duke) *(New Testament Studies)*

### Numata Visiting Professor

- Dr. Martin Adam; B.A.(Calg.), M.A.(Wat.), Ph.D.(McG.)

### Adjunct Professors

- **Paul Jennings;** B.A., M.A.(Tor.), B.Th.(McG.)
- **Philip Joudrey;** B.A., M.Div.(Acad.), D.Min.(Andover Newton Theological School)
- **William Klempa;** B.A.(Manit.), M.A.(Tor.), B.D., D.D.(Knox, Tor.), Ph.D.(Edin.)
- **T. Jinpa Langri;** B.A., Dr.Div.(King’s Coll., Lond.), Ph.D.(Camb.)
- **Lucille Marr;** B.A., M.A., Ph.D.(Wat.)
- **Vanessa Sasson;** B.A., M.A., Ph.D.(McG.)
- **John M. Simons;** B.A.(Bishop's), S.T.B.(Trin. Coll., Tor.), Ph.D.(G'town) (PT)
- **John Vissers;** B.A.(Tor.), M.Div.(Knox), Th.M.(Princ.), Th.D.(Knox) (PT)
- **Dale Woods;** B.A.(Alta.), M.C.S.(Regent), M.Div.(Vancouver School of Theology), D.Min.(Luther Seminary)

### Course Lecturers (2011-2012)

- **Éric Bellavance;** B.A., M.A., Ph.D.(Montr.), Postdoctoral(McG.)
- **Cory Labrecque;** B.Sc., M.A., Ph.D. Candidate(McG.)
- **Lei Kuan Lai;** B.A.(University of the West in Rosemead), M.A.(Qu.), Ph.D. Candidate(McG.)
- **Lucille Marr;** B.A., M.A., Ph.D.(Wat.)
- **R. Saraswati Sainath;** B.Sc., M.A., M.Phil., Ph.D.(Madras), Ph.D. Candidate(McG.)
- **Shital Sharma;** B.Sc., M.A., Ph.D. Candidate(McG.)
Course Lecturers (2011-2012)

Manjit Singh; B.A., M.A.(Delhi)

Carla Sulzbach; B.A.(Amster.), M.A., Ph.D.(McG.)

3.11.45.5 Bachelor of Arts (B.A.) - Minor Concentration World Religions (18 credits)

The Minor Concentration World Religions introduces students to the major world religions and to the academic study of religion. This program may be expanded to the Major Concentration World Religions.

Complementary Courses (18 credits)

18 credits, no more than 12 of which may be taken at the 200-level, selected with the following specifications:

12 credits in Religious Traditions chosen from the course lists on "Judaism and Christianity" and/or "Hinduism and Buddhism."

6 credits from the course list on "Comparative Studies."

Judaism and Christianity

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<td>Judaism, Christianity and Islam</td>
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<td>Jesus of Nazareth</td>
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### 3.11.45.6 Bachelor of Arts (B.A.) - Minor Concentration Scriptural Languages (18 credits)

The Minor Concentration Scriptural Languages is designed to provide students with the skills necessary to read scriptural sources in their original languages. This Minor concentration is recommended to be followed in conjunction with the Major Concentration Scriptures and Interpretations. This program may not be expanded to one of the major concentrations offered in Religious Studies.

Students will choose from one of two streams:

**Stream I: Biblical Languages**

**Stream II: Indo-Tibetan Languages**

### Stream I - Biblical Languages

18 credits chosen from among courses on Biblical Hebrew and Biblical Greek.

#### Biblical Hebrew

* Note: Students with advanced standing in Hebrew may take Aramaic as part of their program.

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#### Biblical Greek

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### Stream II - Indo-Tibetan Languages
Sanskrit is the language of classical Indian civilization and is recommended for students interested in gaining access to religious texts, philosophical works, academic treatises on all subjects, and poetry written in classical and medieval India. Classical Tibetan is one of the main scriptural languages of Buddhism. Many texts originally composed in Sanskrit are only extant in their Tibetan translations, and a vast body of philosophical, devotional, poetic and academic works composed in Classical Tibetan is only accessible to one who has a firm grasp of the language.

Tamil is a language spoken by over 75,000,000 people around the world. It is an ancient South Indian language that, unlike Sanskrit, has a vital, living tradition. It has a classical literary canon and yet is also part of the everyday lives of millions of people.

18 credits chosen from among courses on Sanskrit, Tibetan, and Tamil.

**Sanskrit**

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**Tamil**

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**3.11.45.7 Bachelor of Arts (B.A.) - Major Concentration World Religions (36 credits)**

Revision, August 2011. Start of revision.

The Major Concentration World Religions offers students a broad introduction to the study of the world's major religions, with the possibility for concentration in a student's specific areas of interest. Developing an understanding of methods and problems in comparative approaches to the academic study of religion will be encouraged.

**Required Course (3 credits)**

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**Complementary Courses (33 credits)**

33 credits, no more than 12 of which may be taken at the 200 level, selected with the following specifications:

24 credits in World Religions chosen from the course lists on "Judaism and Christianity" and/or "Hinduism and Buddhism" according to the student's area of interest.

9 credits from the course list on "Comparative Studies" according to the student's area of interest.

**Judaism and Christianity**

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RELG 204 (3) Judaism, Christianity and Islam
RELG 210 (3) Jesus of Nazareth
RELG 300 (3) Second Temple Judaism
RELG 302 (3) Literature of Ancient Israel 1
RELG 303 (3) Literature of Ancient Israel 2
RELG 306 (3) Rabbinic Judaism
RELG 307 (3) Bible, Quran & Interpretations
RELG 311 (3) New Testament Studies 1
RELG 312 (3) New Testament Studies 2
RELG 313 (3) Topics in Biblical Studies 1
RELG 314 (3) Topics in Biblical Studies 2
RELG 322 (3) The Church in History 1
RELG 323 (3) The Church in History 2
RELG 324 (3) Armenian Apostolic Tradition
RELG 325 (3) Varieties Religious Experience in Christianity
RELG 326 (3) Ancient Christian Church AD54 - AD604
RELG 333 (3) Principles of Christian Theology 1
RELG 334 (3) Christian Thought and Culture
RELG 336 (3) Contemporary Theological Issues
RELG 338 (3) Women and the Christian Tradition
RELG 373 (3) Topics in Christian Ethics
RELG 379 (3) Eastern Orthodox Christianity
RELG 399 (3) Christian Spirituality
RELG 420 (3) Canadian Church History
RELG 423 (3) Reformation Thought
RELG 434 (3) Principles of Christian Theology 2
RELG 470 (3) Theological Ethics
RELG 479 (3) Christianity in Global Perspective
RELG 502 (3) Greco-Roman Judaism
RELG 532 (3) History of Christian Thought 1
RELG 533 (3) History of Christian Thought 2

Hinduism and Buddhism
RELG 252 (3) Hinduism and Buddhism
RELG 253 (3) Religions of East Asia
RELG 254 (3) Introduction to Sikhism
RELG 337 (3) Themes in Buddhist Studies
RELG 339 (3) Gender & Sexuality in Buddhism
RELG 342 (3) Theravada Buddhist Literature
RELG 344 (3) Mahayana Buddhism
RELG 348 (3) Classical Hinduism
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**Comparative Studies**

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<td>3</td>
<td>The Study of World Religions 1</td>
</tr>
<tr>
<td>RELG 256</td>
<td>3</td>
<td>Women in Judaism and Islam</td>
</tr>
<tr>
<td>RELG 270</td>
<td>3</td>
<td>Religious Ethics and the Environment</td>
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<tr>
<td>RELG 271</td>
<td>3</td>
<td>Sexual Ethics</td>
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<tr>
<td>RELG 315</td>
<td>3</td>
<td>Special Topics in Religion 1</td>
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<td>RELG 316</td>
<td>3</td>
<td>New Religious Movements</td>
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<td>RELG 317</td>
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<td>RELG 343</td>
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<tr>
<td>RELG 347</td>
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</table>
Religion and the Arts 2
Religious Behaviour
Religion and Human Rights
Ethics of Violence/Non-Violence
Religion and Society
Religious Ethics
Honours Seminar
Religion and Medicine

Revision, August 2011. End of revision.

3.11.45.8 Bachelor of Arts (B.A.) - Major Concentration Scriptures and Interpretations (36 credits)

The Major Concentration Scriptures and Interpretations is designed for students interested in understanding scriptural literatures and their place in developing religious traditions. While students will be able to concentrate in the area of their choice (Jewish, Christian, or Hindu and Buddhist Scriptures and Interpretations), they will study scriptures of at least two religious traditions, either in English translation or, if their skills permit, in the original languages.

Required Courses (6 credits)
- RELG 307 (3) Bible, Quran & Interpretations
- RELG 456 (3) Theories of Religion

Complementary Courses (30 credits)
30 credits with a minimum of 18 credits selected from one area of specialization and a minimum of 6 credits from a second area.

Areas of Specialization:
(a) Jewish Scriptures and the History of Their Interpretation
(b) Christian Scriptures and the History of Their Interpretation
(c) Hindu and Buddhist Scriptures and the Histories of Their Interpretations

No more than 12 credits may be taken at the 200 level.

(a) Jewish Scriptures and the History of Their Interpretation
- JWST 310 (3) Believers, Heretics and Critics
- JWST 324 (3) Biblical Interpretation - Antiquity
- JWST 327 (3) A Book of the Bible
- JWST 328 (3) A Book of the Bible
- JWST 329 (3) A Book of the Bible
- JWST 330 (3) A Book of the Bible
- JWST 331 (3) Bible Interpretation/Medieval Ashkenaz
- JWST 332 (3) Bible Interpretation/Sefardic Tradition
- JWST 510 (3) Jewish Bible Interpretation 1
- JWST 511 (3) Jewish Bible Interpretation 2
- RELG 201 (3) Religions of the Ancient Near East
- RELG 202 (3) Religion of Ancient Israel
- RELG 203 (3) Bible and Western Culture
- RELG 300 (3) Second Temple Judaism
- RELG 302 (3) Literature of Ancient Israel 1
- RELG 303 (3) Literature of Ancient Israel 2
- RELG 306 (3) Rabbinic Judaism
RELG 308 (3) Ancient Bible Translations
RELG 309D1 (3) Elementary Biblical Hebrew
RELG 309D2 (3) Elementary Biblical Hebrew
RELG 407 (3) The Writings
RELG 408 (3) The Prophets
RELG 491 (3) Hebrew Texts
RELG 492 (3) Hebrew Texts
RELG 502 (3) Greco-Roman Judaism

(b) Christian Scriptures and the History of Their Interpretation
RELG 203 (3) Bible and Western Culture
RELG 210 (3) Jesus of Nazareth
RELG 280 (6) Elementary New Testament Greek
RELG 302 (3) Literature of Ancient Israel 1
RELG 303 (3) Literature of Ancient Israel 2
RELG 308 (3) Ancient Bible Translations
RELG 311 (3) New Testament Studies 1
RELG 312 (3) New Testament Studies 2
RELG 313 (3) Topics in Biblical Studies 1
RELG 314 (3) Topics in Biblical Studies 2
RELG 381 (3) Advanced New Testament Greek
RELG 404 (3) Post Exilic Biblical Literature
RELG 407 (3) The Writings
RELG 408 (3) The Prophets
RELG 411 (3) New Testament Exegesis
RELG 482 (3) Exegesis of Greek New Testament
RELG 583 (3) Hellenistic Religious Texts

(c) Hindu and Buddhist Scriptures and the Histories of Their Interpretations
RELG 252 (3) Hinduism and Buddhism
RELG 253 (3) Religions of East Asia
RELG 254 (3) Introduction to Sikhism
RELG 257D1 (3) Introductory Sanskrit
RELG 257D2 (3) Introductory Sanskrit
RELG 264 (3) Introductory Tibetan 1
RELG 265 (3) Introductory Tibetan 2
RELG 266 (3) Introductory Tamil 1
RELG 267 (3) Introductory Tamil 2
RELG 337 (3) Themes in Buddhist Studies
RELG 342 (3) Theravada Buddhist Literature
RELG 344 (3) Mahayana Buddhism
RELG 348 (3) Classical Hinduism
3.11.45.9 Bachelor of Arts (B.A.) - Honours Religious Studies - Asian Religions (60 credits)

The Honours Religious Studies offers a degree of analysis and concentration beyond that of the Major program through coursework, intensive research and discussion with peer groups.

There are no prerequisites for entry to the program. Students must, however, maintain a program GPA and a CGPA of 3.00 (or 3.50 for First Class Honours).

While gaining general knowledge of the study of religion, students also develop more concentrated expertise in either the Western Religions or Asian Religions option.

The requirements set out below pertain to the Asian Religions option.

**Required Courses (9 credits)**

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<tr>
<th>Course Code</th>
<th>Credits</th>
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<td>3</td>
<td>Judaism, Christianity and Islam</td>
</tr>
<tr>
<td>RELG 456</td>
<td>3</td>
<td>Theories of Religion</td>
</tr>
<tr>
<td>RELG 555</td>
<td>3</td>
<td>Honours Seminar</td>
</tr>
</tbody>
</table>

**Complementary Courses (51 credits)**

51 credits selected with the following specifications:

- 3 credits introductory courses on Asian Religious Traditions
- 6 credits of Scriptural Languages related to Asian religious traditions (selected in consultation with the Program Adviser)
- 9 credits of courses on Religion and Culture
12 credits from the list of Approved Courses from Other Departments, of which at least 6 credits must be related to Western Religions

21 credits chosen from courses on Asian Religions, of which 3 credits must be a 500-level research seminar

**Introductory - Asian Religious Traditions**

3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELG 252</td>
<td>(3)</td>
<td>Hinduism and Buddhism</td>
</tr>
<tr>
<td>RELG 253</td>
<td>(3)</td>
<td>Religions of East Asia</td>
</tr>
</tbody>
</table>

**Asian Religions - Scriptural Languages**

6 credits of scriptural languages (Sanskrit, Tamil or Tibetan) chosen in consultation with the Program Adviser.

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>RELG 257D1</td>
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<td>RELG 257D2</td>
<td>(3)</td>
<td>Introductory Sanskrit</td>
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<td>RELG 264</td>
<td>(3)</td>
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<td>RELG 265</td>
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<td>RELG 266</td>
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<td>Introductory Tamil 2</td>
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<td>RELG 357D1</td>
<td>(3)</td>
<td>Sanskrit 2</td>
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<tr>
<td>RELG 357D2</td>
<td>(3)</td>
<td>Sanskrit 2</td>
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<tr>
<td>RELG 364</td>
<td>(3)</td>
<td>Intermediate Tibetan 1</td>
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<td>RELG 365</td>
<td>(3)</td>
<td>Intermediate Tibetan 2</td>
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<tr>
<td>RELG 457D1</td>
<td>(3)</td>
<td>Advanced Sanskrit</td>
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<tr>
<td>RELG 457D2</td>
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<tr>
<td>RELG 465</td>
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</table>

**Religion and Culture**

9 credits selected from:

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
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<tbody>
<tr>
<td>RELG 256</td>
<td>(3)</td>
<td>Women in Judaism and Islam</td>
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<tr>
<td>RELG 270</td>
<td>(3)</td>
<td>Religious Ethics and the Environment</td>
</tr>
<tr>
<td>RELG 271</td>
<td>(3)</td>
<td>Sexual Ethics</td>
</tr>
<tr>
<td>RELG 338</td>
<td>(3)</td>
<td>Women and the Christian Tradition</td>
</tr>
<tr>
<td>RELG 339</td>
<td>(3)</td>
<td>Gender &amp; Sexuality in Buddhism</td>
</tr>
<tr>
<td>RELG 340</td>
<td>(3)</td>
<td>Religion and the Sciences</td>
</tr>
<tr>
<td>RELG 341</td>
<td>(3)</td>
<td>Introduction: Philosophy of Religion</td>
</tr>
<tr>
<td>RELG 345</td>
<td>(3)</td>
<td>Religion and the Arts 1</td>
</tr>
<tr>
<td>RELG 347</td>
<td>(3)</td>
<td>Topics in Religion and the Arts</td>
</tr>
<tr>
<td>RELG 355</td>
<td>(3)</td>
<td>Religion and the Arts 2</td>
</tr>
<tr>
<td>RELG 361</td>
<td>(3)</td>
<td>Religious Behaviour</td>
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<td>RELG 370</td>
<td>(3)</td>
<td>Religion and Human Rights</td>
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<td>RELG 371</td>
<td>(3)</td>
<td>Ethics of Violence/Non-Violence</td>
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<tr>
<td>RELG 373</td>
<td>(3)</td>
<td>Topics in Christian Ethics</td>
</tr>
<tr>
<td>RELG 375</td>
<td>(3)</td>
<td>Religion and Society</td>
</tr>
<tr>
<td>RELG 376</td>
<td>(3)</td>
<td>Religious Ethics</td>
</tr>
</tbody>
</table>
Approved Courses from Other Departments

12 credits of Approved Courses from Other Departments, of which at least 6 credits must be related to Western Religions.

This list is NOT comprehensive. Students may take approved related courses in other departments of the Faculty of Arts, such as Anthropology, Art History, Classics, English, History, Italian Studies, Philosophy, and Sociology selected in consultation with the Program Adviser.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>EAST 354</td>
<td>Taoist and Buddhist Apocalypses</td>
</tr>
<tr>
<td>EAST 551</td>
<td>Technologies of Self in Early China</td>
</tr>
<tr>
<td>ISLA 410</td>
<td>History: Middle-East 1798-1918</td>
</tr>
<tr>
<td>ISLA 411</td>
<td>History: Middle-East 1918-1945</td>
</tr>
<tr>
<td>ISLA 505</td>
<td>Islam: Origin and Early Development</td>
</tr>
<tr>
<td>ISLA 510D1</td>
<td>History: Islamic Civilization - Classical</td>
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<tr>
<td>ISLA 510D2</td>
<td>History: Islamic Civilization - Classical</td>
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<tr>
<td>ISLA 511D1</td>
<td>History: Islamic Civilization - Mediaeval Era</td>
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<td>ISLA 511D2</td>
<td>History: Islamic Civilization - Mediaeval Era</td>
</tr>
<tr>
<td>ISLA 531D1</td>
<td>Survey Development of Islamic Thought</td>
</tr>
<tr>
<td>ISLA 531D2</td>
<td>Survey Development of Islamic Thought</td>
</tr>
<tr>
<td>JWST 211</td>
<td>Jewish Studies 1: Biblical Period</td>
</tr>
<tr>
<td>JWST 252</td>
<td>Interdisciplinary Lectures</td>
</tr>
<tr>
<td>JWST 316</td>
<td>Social and Ethical Issues Jewish Law 1</td>
</tr>
<tr>
<td>JWST 359</td>
<td>Topics in Jewish Philosophy 2</td>
</tr>
</tbody>
</table>

The following approved courses offered by Jewish Studies require a reading knowledge of Hebrew:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>JWST 330</td>
<td>A Book of the Bible</td>
</tr>
<tr>
<td>JWST 345</td>
<td>Introduction to Rabbinic Literature</td>
</tr>
<tr>
<td>JWST 510</td>
<td>Jewish Bible Interpretation 1</td>
</tr>
<tr>
<td>JWST 511</td>
<td>Jewish Bible Interpretation 2</td>
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<tr>
<td>JWST 535</td>
<td>Exegetic Midrash</td>
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<tr>
<td>JWST 543</td>
<td>Maimonides as Parshan</td>
</tr>
<tr>
<td>JWST 550</td>
<td>The Bible in Hebrew Literature</td>
</tr>
<tr>
<td>JWST 556</td>
<td>Modern Parshanut 1</td>
</tr>
<tr>
<td>JWST 573</td>
<td>History of Hebrew Bible Text</td>
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</tbody>
</table>

Asian Religions

21 credits chosen from the list below, 3 credits of which must be a 500-level research seminar.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>EAST 354</td>
<td>Taoist and Buddhist Apocalypses</td>
</tr>
<tr>
<td>RELG 337</td>
<td>Themes in Buddhist Studies</td>
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<td>RELG 339</td>
<td>Gender &amp; Sexuality in Buddhism</td>
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<td>RELG 344</td>
<td>Mahayana Buddhism</td>
</tr>
<tr>
<td>RELG 348</td>
<td>Classical Hinduism</td>
</tr>
<tr>
<td>RELG 350</td>
<td>Bhakti Hinduism</td>
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</table>
Bachelor of Arts (B.A.) - Honours Religious Studies - Western Religions (60 credits)

The Honours Religious Studies offers a degree of analysis and concentration beyond that of the Major program through coursework, intensive research and discussion with peer groups.

There are no prerequisites for entry to the program. Students must, however, maintain a program GPA and a CGPA of 3.00 (or 3.50 for First Class Honours).

While gaining general knowledge of the study of religion, students also develop more concentrated expertise in either the Western Religions or Asian Religions option.

The requirements set out below pertain to the Western Religions option.

**Required Courses**

- RELG 204 (3) Judaism, Christianity and Islam
- RELG 456 (3) Theories of Religion
- RELG 555 (3) Honours Seminar

**Complementary Courses (51 credits)**

51 credits selected with the following specifications:

- 3 credits introductory courses on Asian Religious Traditions
- 6 credits of Scriptural Languages related to Western religious traditions (selected in consultation with the Program Adviser)
- 9 credits of courses on Religion and Culture
- 12 credits from the list of Approved Courses from Other Departments, of which at least 6 credits must be related to Asian Religions
- 21 credits chosen from courses on Western Religions, of which 3 credits must be a 500-level research seminar

**Introductory - Asian Religious Traditions**
3 credits from:

- RELG 252 (3) Hinduism and Buddhism
- RELG 253 (3) Religions of East Asia

**Western Religions - Scriptural Languages**

6 credits of scriptural languages (Biblical Greek or Biblical Hebrew) chosen in consultation with the Program Adviser.

- JWST 327 (3) A Book of the Bible
- JWST 328 (3) A Book of the Bible
- JWST 329 (3) A Book of the Bible
- JWST 330 (3) A Book of the Bible
- RELG 280D1 (3) Elementary New Testament Greek
- RELG 280D2 (3) Elementary New Testament Greek
- RELG 381 (3) Advanced New Testament Greek
- RELG 390D1 (3) Elementary Biblical Hebrew
- RELG 390D2 (3) Elementary Biblical Hebrew
- RELG 482 (3) Exegesis of Greek New Testament
- RELG 491 (3) Hebrew Texts
- RELG 492 (3) Hebrew Texts
- RELG 583 (3) Hellenistic Religious Texts

**Religion and Culture**

9 credits selected from:

- RELG 256 (3) Women in Judaism and Islam
- RELG 270 (3) Religious Ethics and the Environment
- RELG 271 (3) Sexual Ethics
- RELG 338 (3) Women and the Christian Tradition
- RELG 339 (3) Gender & Sexuality in Buddhism
- RELG 340 (3) Religion and the Sciences
- RELG 341 (3) Introduction: Philosophy of Religion
- RELG 345 (3) Religion and the Arts 1
- RELG 347 (3) Topics in Religion and the Arts
- RELG 355 (3) Religion and the Arts 2
- RELG 356 (3) Gender & Sexuality in Hinduism
- RELG 361 (3) Religious Behaviour
- RELG 370 (3) Religion and Human Rights
- RELG 371 (3) Ethics of Violence/Non-Violence
- RELG 373 (3) Topics in Christian Ethics
- RELG 375 (3) Religion and Society
- RELG 376 (3) Religious Ethics
- RELG 377 (3) Religious Controversies

**Approved Courses from Other Departments**

12 credits of Approved Courses from Other Departments, of which at least 6 credits must be related to Asian Religions.
This list is NOT comprehensive. Students may take approved related courses in other departments of the Faculty of Arts, such as Anthropology, Art History, Classics, English, History, Italian Studies, Philosophy, and Sociology selected in consultation with the Program Adviser.

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<td>ISLA 510D2</td>
<td>3</td>
<td>History: Islamic Civilization - Classical</td>
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<tr>
<td>ISLA 511D1</td>
<td>3</td>
<td>History: Islamic Civilization - Medieval Era</td>
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<td>ISLA 511D2</td>
<td>3</td>
<td>History: Islamic Civilization - Medieval Era</td>
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<td>Topics in Jewish Philosophy 2</td>
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The following approved courses offered by Jewish Studies require a reading knowledge of Hebrew:

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<td>JWST 330</td>
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<tr>
<td>JWST 345</td>
<td>3</td>
<td>Introduction to Rabbinic Literature</td>
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<td>JWST 510</td>
<td>3</td>
<td>Jewish Bible Interpretation 1</td>
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<td>JWST 511</td>
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<td>Jewish Bible Interpretation 2</td>
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<td>JWST 535</td>
<td>3</td>
<td>Exegetic Midrash</td>
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<td>JWST 543</td>
<td>3</td>
<td>Maimonides as Parshah</td>
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<td>JWST 550</td>
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<td>The Bible in Hebrew Literature</td>
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<td>JWST 556</td>
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<td>Modern Parshanut 1</td>
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<tr>
<td>JWST 573</td>
<td>3</td>
<td>History of Hebrew Bible Text</td>
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**Western Religions**

21 credits chosen from the list below, 3 credits of which must be a 500-level research seminar.

<table>
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<td>Religions of the Ancient Near East</td>
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<tr>
<td>RELG 202</td>
<td>3</td>
<td>Religion of Ancient Israel</td>
</tr>
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<td>RELG 203</td>
<td>3</td>
<td>Bible and Western Culture</td>
</tr>
<tr>
<td>RELG 204</td>
<td>3</td>
<td>Judaism, Christianity and Islam</td>
</tr>
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<td>RELG 210</td>
<td>3</td>
<td>Jesus of Nazareth</td>
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<td>RELG 300</td>
<td>3</td>
<td>Second Temple Judaism</td>
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<tr>
<td>RELG 301</td>
<td>3</td>
<td>Jewish Thought 200 B.C.E - 200 C.E</td>
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<td>RELG 302</td>
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<td>Literature of Ancient Israel 1</td>
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<td>RELG 303</td>
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<td>Literature of Ancient Israel 2</td>
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<td>RELG 306</td>
<td>3</td>
<td>Rabbinic Judaism</td>
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<td>Course Code</td>
<td>Credits</td>
<td>Course Title</td>
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</tr>
<tr>
<td>RELG 307</td>
<td>3</td>
<td>Bible, Quran &amp; Interpretations</td>
</tr>
<tr>
<td>RELG 308</td>
<td>3</td>
<td>Ancient Bible Translations</td>
</tr>
<tr>
<td>RELG 311</td>
<td>3</td>
<td>New Testament Studies 1</td>
</tr>
<tr>
<td>RELG 312</td>
<td>3</td>
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<td>RELG 313</td>
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<td>Topics in Biblical Studies 1</td>
</tr>
<tr>
<td>RELG 314</td>
<td>3</td>
<td>Topics in Biblical Studies 2</td>
</tr>
<tr>
<td>RELG 322</td>
<td>3</td>
<td>The Church in History 1</td>
</tr>
<tr>
<td>RELG 323</td>
<td>3</td>
<td>The Church in History 2</td>
</tr>
<tr>
<td>RELG 326</td>
<td>3</td>
<td>Ancient Christian Church AD54 - AD604</td>
</tr>
<tr>
<td>RELG 334</td>
<td>3</td>
<td>Christian Thought and Culture</td>
</tr>
<tr>
<td>RELG 336</td>
<td>3</td>
<td>Contemporary Theological Issues</td>
</tr>
<tr>
<td>RELG 379</td>
<td>3</td>
<td>Eastern Orthodox Christianity</td>
</tr>
<tr>
<td>RELG 381</td>
<td>3</td>
<td>Advanced New Testament Greek</td>
</tr>
<tr>
<td>RELG 399</td>
<td>3</td>
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<td>RELG 407</td>
<td>3</td>
<td>The Writings</td>
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<td>RELG 408</td>
<td>3</td>
<td>The Prophets</td>
</tr>
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<td>RELG 423</td>
<td>3</td>
<td>Reformation Thought</td>
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<tr>
<td>RELG 438</td>
<td>3</td>
<td>Topics in Jewish Theology</td>
</tr>
<tr>
<td>RELG 482</td>
<td>3</td>
<td>Exegesis of Greek New Testament</td>
</tr>
<tr>
<td>RELG 491</td>
<td>3</td>
<td>Hebrew Texts</td>
</tr>
<tr>
<td>RELG 492</td>
<td>3</td>
<td>Hebrew Texts</td>
</tr>
<tr>
<td>RELG 502</td>
<td>3</td>
<td>Greco-Roman Judaism</td>
</tr>
<tr>
<td>RELG 532</td>
<td>3</td>
<td>History of Christian Thought 1</td>
</tr>
<tr>
<td>RELG 533</td>
<td>3</td>
<td>History of Christian Thought 2</td>
</tr>
<tr>
<td>RELG 583</td>
<td>3</td>
<td>Hellenistic Religious Texts</td>
</tr>
</tbody>
</table>

3.11.45.11 Bachelor of Arts (B.A.) – Joint Honours Component Religious Studies – Asian Religions (36 credits)

Revision, August 2011. Start of revision.

Students wishing to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see “Overview of Programs Offered” and “Joint Honours Programs”.

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable).

Students in Joint Honours must maintain a program GPA and a CGPA of 3.00 (3.50 for First Class Honours) and attain a B- or higher in each program course. No overlap is allowed between the courses forming each segment of the Joint Honours program.

Students in Joint Honours Component Religious Studies choose either the Western Religions or Asian Religions option.

It is possible for students following either the Western Religions or the Asian Religions option of the Joint Honours Component Religious Studies to combine their program with the Joint Honours Component Philosophy and Western Religions as the Religious Studies program broadens the material included in the Philosophy and Western Religions program.

The requirements set out below pertain to the Asian Religions option.

**Complementary Courses (36 credits)**

36 credits selected with the following specifications:

- 3 credits from Introductory Courses
- 3 credits from Advanced Courses
- 9 credits from Two Groups (Asian Religious Traditions, History and Philosophy) with at least 3 credits from each group
- 6 credits in Religion and Culture courses
15 credits, selected in consultation with an adviser, from Religious Studies (RELG) courses (or Approved Related Courses in Other Departments) at the 300 level or above, of which 9 credits must be at the 400 level or above.

**Introductory Courses**

3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELG 202</td>
<td>Religion of Ancient Israel</td>
</tr>
<tr>
<td>RELG 203</td>
<td>Bible and Western Culture</td>
</tr>
<tr>
<td>RELG 204</td>
<td>Judaism, Christianity and Islam</td>
</tr>
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</table>

**Advanced Courses**

3 credits from:

<table>
<thead>
<tr>
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<th>Title</th>
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</thead>
<tbody>
<tr>
<td>RELG 456</td>
<td>Theories of Religion</td>
</tr>
<tr>
<td>RELG 555</td>
<td>Honours Seminar</td>
</tr>
</tbody>
</table>

**Two Groups**

9 credits selected from two groups with at least 3 credits from each group:

**Asian Religious Traditions**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELG 252</td>
<td>Hinduism and Buddhism</td>
</tr>
<tr>
<td>RELG 253</td>
<td>Religions of East Asia</td>
</tr>
<tr>
<td>RELG 254</td>
<td>Introduction to Sikhism</td>
</tr>
<tr>
<td>RELG 352</td>
<td>Japanese Religions</td>
</tr>
<tr>
<td>RELG 354</td>
<td>Chinese Religions</td>
</tr>
</tbody>
</table>

**History and Philosophy**

<table>
<thead>
<tr>
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<th>Title</th>
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</thead>
<tbody>
<tr>
<td>RELG 342</td>
<td>Theravada Buddhist Literature</td>
</tr>
<tr>
<td>RELG 344</td>
<td>Mahayana Buddhism</td>
</tr>
<tr>
<td>RELG 348</td>
<td>Classical Hinduism</td>
</tr>
<tr>
<td>RELG 350</td>
<td>Bhakti Hinduism</td>
</tr>
<tr>
<td>RELG 369</td>
<td>Tibetan Buddhism</td>
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</table>

**Religion and Culture**

6 credits from:

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>RELG 270</td>
<td>Religious Ethics and the Environment</td>
</tr>
<tr>
<td>RELG 271</td>
<td>Sexual Ethics</td>
</tr>
<tr>
<td>RELG 337</td>
<td>Themes in Buddhist Studies</td>
</tr>
<tr>
<td>RELG 339</td>
<td>Gender &amp; Sexuality in Buddhism</td>
</tr>
<tr>
<td>RELG 340</td>
<td>Religion and the Sciences</td>
</tr>
<tr>
<td>RELG 346</td>
<td>Myth and Symbol in Hindu and Buddhist Art</td>
</tr>
<tr>
<td>RELG 353</td>
<td>Gandhi: His Life and Thought</td>
</tr>
<tr>
<td>RELG 356</td>
<td>Gender &amp; Sexuality in Hinduism</td>
</tr>
<tr>
<td>RELG 371</td>
<td>Ethics of Violence/Non-Violence</td>
</tr>
<tr>
<td>RELG 372</td>
<td>Hindu Goddesses</td>
</tr>
<tr>
<td>RELG 375</td>
<td>Religion and Society</td>
</tr>
</tbody>
</table>
Religious Studies (RELG)

15 credits, selected in consultation with the Program Adviser, from Religious Studies (RELG) courses at the 300 level or above, of which 9 credits must be at the 400 level or above.

A maximum of 6 credits from other departments may be used toward this requirement (see list below).

Approved Related Courses in Other Departments

The list below is NOT comprehensive. Students may take approved related courses in other departments of the Faculty of Arts, such as Anthropology, Art History, Classics, English, History, Italian Studies, Philosophy, and Sociology selected in consultation with the Program Adviser.

- EAST 354 (3) Taoist and Buddhist Apocalypses
- EAST 551 (3) Technologies of Self in Early China
- ISLA 410 (3) History: Middle-East 1798-1918
- ISLA 411 (3) History: Middle-East 1918-1945
- ISLA 505 (3) Islam: Origin and Early Development
- ISLA 510D1 (3) History: Islamic Civilization - Classical
- ISLA 510D2 (3) History: Islamic Civilization - Classical
- ISLA 511D1 (3) History: Islamic Civilization - Mediaeval Era
- ISLA 511D2 (3) History: Islamic Civilization - Mediaeval Era
- ISLA 531D1 (3) Survey Development of Islamic Thought
- ISLA 531D2 (3) Survey Development of Islamic Thought
- JWST 211 (3) Jewish Studies 1: Biblical Period
- JWST 252 (3) Interdisciplinary Lectures
- JWST 316 (3) Social and Ethical Issues Jewish Law 1
- JWST 359 (3) Topics in Jewish Philosophy 2

The following approved courses offered by Jewish Studies require a reading knowledge of Hebrew:

- JWST 330 (3) A Book of the Bible
- JWST 345 (3) Introduction to Rabbinic Literature
- JWST 510 (3) Jewish Bible Interpretation 1
- JWST 511 (3) Jewish Bible Interpretation 2
- JWST 535 (3) Exegetic Midrash
- JWST 543 (3) Maimonides as Parshan
- JWST 550 (3) The Bible in Hebrew Literature
- JWST 556 (3) Modern Parshanut 1
- JWST 573 (3) History of Hebrew Bible Text

Revision, August 2011. End of revision.

3.11.45.12 Bachelor of Arts (B.A.) - Joint Honours Component Religious Studies - Western Religions (36 credits)

Students wishing to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable).
Students in Joint Honours must maintain a program GPA and a CGPA of 3.00 (3.50 for First Class Honours) and attain a B- or higher in each program course. No overlap is allowed between the courses forming each segment of the Joint Honours program.

Students in Joint Honours Component Religious Studies choose either the Western Religions or Asian Religions option.

It is possible for students following either the Western Religions or the Asian Religions option of the Joint Honours Component Religious Studies to combine their program with the Joint Honours Component Philosophy and Western Religions as the Religious Studies program broadens the material included in the Philosophy and Western Religions program.

The requirements set out below pertain to the Western Religions option.

**Complementary Courses (36 credits)**

36 credits selected with the following specifications:

- 3 credits from Introductory Courses
- 3 credits from Advanced Courses
- 9 credits from Two Groups (Sources of Western Religious Traditions, History and Theology of the Christian Tradition) with at least 3 credits from each group
- 6 credits in Religion and Culture courses
- 15 credits, selected in consultation with an adviser, from Religious Studies (RELG) courses (or Approved Related Courses in Other Departments) at the 300-level or above, of which 9 credits must be at the 400-level or above

**Introductory Courses**

3 credits from:

- RELG 252 (3) Hinduism and Buddhism
- RELG 253 (3) Religions of East Asia

**Advanced Courses**

3 credits from:

- RELG 456 (3) Theories of Religion
- RELG 555 (3) Honours Seminar

**Two Groups**

9 credits selected from two groups with at least 3 credits from each group:

**Sources of Western Religious Traditions**

- RELG 201 (3) Religions of the Ancient Near East
- RELG 202 (3) Religion of Ancient Israel
- RELG 302 (3) Literature of Ancient Israel 1
- RELG 303 (3) Literature of Ancient Israel 2
- RELG 311 (3) New Testament Studies 1
- RELG 312 (3) New Testament Studies 2

**History and Theology of the Christian Tradition**

- RELG 322 (3) The Church in History 1
- RELG 323 (3) The Church in History 2
- RELG 326 (3) Ancient Christian Church AD54 - AD604
- RELG 334 (3) Christian Thought and Culture
- RELG 532 (3) History of Christian Thought 1
- RELG 533 (3) History of Christian Thought 2
Religion and Culture

6 credits from:

- RELG 256 (3) Women in Judaism and Islam
- RELG 271 (3) Sexual Ethics
- RELG 338 (3) Women and the Christian Tradition
- RELG 340 (3) Religion and the Sciences
- RELG 341 (3) Introduction: Philosophy of Religion
- RELG 347 (3) Topics in Religion and the Arts
- RELG 361 (3) Religious Behaviour
- RELG 370 (3) Religion and Human Rights
- RELG 371 (3) Ethics of Violence/Non-Violence
- RELG 375 (3) Religion and Society
- RELG 376 (3) Religious Ethics
- RELG 377 (3) Religious Controversies

Religious Studies (RELG)

15 credits, selected in consultation with the program adviser, from Religious Studies (RELG) courses at the 300 level or above, of which 9 credits must be at the 400 level or above.

A maximum of 6 credits from other departments may be used toward this requirement (see list below).

Approved Related Courses in Other Departments

The list below is NOT comprehensive. Students may take approved related courses in other departments of the Faculty of Arts, such as Anthropology, Art History, Classics, English, History, Italian Studies, Philosophy, and Sociology selected in consultation with the Program Adviser.

- EAST 354 (3) Taoist and Buddhist Apocalypses
- EAST 551 (3) Technologies of Self in Early China
- ISLA 410 (3) History: Middle-East 1798-1918
- ISLA 411 (3) History: Middle-East 1918-1945
- ISLA 505 (3) Islam: Origin and Early Development
- ISLA 510D1 (3) History: Islamic Civilization - Classical
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- ISLA 511D1 (3) History: Islamic Civilization - Mediaeval Era
- ISLA 511D2 (3) History: Islamic Civilization - Mediaeval Era
- ISLA 531D1 (3) Survey Development of Islamic Thought
- ISLA 531D2 (3) Survey Development of Islamic Thought
- JWST 211 (3) Jewish Studies 1: Biblical Period
- JWST 252 (3) Interdisciplinary Lectures
- JWST 316 (3) Social and Ethical Issues Jewish Law 1
- JWST 359 (3) Topics in Jewish Philosophy 2

The following approved courses offered by Jewish Studies require a reading knowledge of Hebrew:

- JWST 330 (3) A Book of the Bible
- JWST 345 (3) Introduction to Rabbinic Literature
- JWST 510 (3) Jewish Bible Interpretation 1
3.11.46 Russian and Slavic Studies (RUSS)

3.11.46.1 Location

688 Sherbrooke Street West, Suite 425
Montreal, Quebec H3A 3R1

Telephone: 514-398-3639
Fax: 514-398-1748
Email: russian.slavicstudies@mcgill.ca
Website: www.mcgill.ca/russian

3.11.46.2 About Russian and Slavic Studies

Many opportunities are open to students with qualifications in Russian and other Slavic studies. Students may be interested in the organization of human society, comparative literature, linguistics – Russian studies are highly relevant to all of these. In addition, because of similar problems in geography, climate, industrial, and economic growth, Russian studies may have a particular fascination for the Canadian student. Besides being the language of the Russian Federation, Russian is still widely used in the countries of the former Soviet Union. Since most Eastern European countries have academic exchange programs with Canada, well-qualified students should encounter little difficulty in continuing their university studies in Russia or in Eastern Europe.

Advisers

Professor Laura Beraha, Room 335, 514-398-2802
Professor Lyudmila Parts, Room 332, 514-398-1719

Students must obtain Departmental approval to register for language courses and are strongly urged to consult with the Department for advice/approval of their program plans. A placement test is available and may be booked before the start of term by calling 514-398-3639.

3.11.46.3 Russian and Slavic Studies (RUSS) Faculty

Chair
Laura Beraha

Associate Professors

Laura Beraha; B.A., M.A., Ph.D.(McG.)
Lyudmila Parts; M.A., Ph.D.(Col.)

3.11.46.4 Bachelor of Arts (B.A.) - Minor Concentration Russian (18 credits)

The Minor Concentration Russian has four streams and students choose one of them based on their academic interests and proficiency in the language.

- Russian Language and Literature
- Russian Language and Culture
- Advanced Russian Literature
- Advanced Russian Language

This program may be expanded to the Major Concentration Russian.

Students who wish to follow the Advanced Russian Literature or Advanced Russian Language stream must receive Departmental approval; they are designed primarily for students also intending to complete a Major Concentration Russian.

Enrolment in courses above the 200 level is by permission of the Department only.
Required Courses (12 credits)
The required courses are designed to give students a basic working knowledge of Russian. Students who can demonstrate to the Department that they have acquired the equivalent competence elsewhere will replace these credits with courses from the Complementary Course list.

Students must obtain Departmental approval to register for language courses and are strongly urged to consult with the Department for advice/approval of their program plans.

RUSS 210 (3) Elementary Russian Language 1
RUSS 211 (3) Elementary Russian Language 2
RUSS 310 (3) Intermediate Russian Language 1
RUSS 311 (3) Intermediate Russian Language 2

Complementary Courses (6 credits)
6 credits of complementary courses chosen from ONE of the following streams:
- Russian Language and Literature
- Russian Language and Culture
- Advanced Russian Literature
- Advanced Russian Language

Russian Language and Literature Stream
RUSS 217 (3) Russia's Eternal Questions
RUSS 300 (3) Russian for Heritage Speakers 1
RUSS 301 (3) Russian for Heritage Speakers 2
RUSS 330 (3) Introduction to Soviet Russian Literature before WWII
RUSS 331 (3) Introduction to Soviet Russian Literature after WWII
RUSS 400 (3) Advanced Russian Language 1
RUSS 401 (3) Advanced Russian Language 2

Russian Language and Culture Stream
RUSS 218 (3) Russian Literature in Revolution
RUSS 219 (3) Russian Literature in Recovery
RUSS 223 (3) Russian 19th Century: Literary Giants 1
RUSS 224 (3) Russian 19th Century: Literary Giants 2

Advanced Russian Literature Stream
By arrangement with the Department and subject to University approval, transfer credits will be accepted from Department-approved exchange/immersion programs.

RUSS 327 (3) Outlines 19th Century Russian Literature: Romantic Period
RUSS 328 (3) Outlines 19th Century Russian Literature: Russian Realism
RUSS 330 (3) Introduction to Soviet Russian Literature before WWII
RUSS 331 (3) Introduction to Soviet Russian Literature after WWII
RUSS 385 (3) Russian Drama
RUSS 390 (3) Special Topics in Russian
RUSS 450 (3) Reading the 20th Century
RUSS 458 (3) Development Russian Novel before Turgenev
RUSS 459 (3) Russian Novel Pushkin-Gogol
Advanced Russian Language Stream

By arrangement with the Department and subject to University approval, transfer credits will be accepted from Department-approved exchange/immersion programs.

**RUSS 415**  
(6)  Advanced Russian Language Intensive 1

**RUSS 416**  
(6)  Advanced Russian Language Intensive 2

**RUSS 450**  
(3)  Reading the 20th Century

**RUSS 452**  
(3)  Advanced Russian Language and Syntax 1

**RUSS 453**  
(3)  Advanced Russian Language and Syntax 2

**RUSS 455**  
(3)  History of Modern Russian Language

**RUSS 470**  
(3)  Individual Reading Course

**RUSS 471**  
(3)  Independent Research

**3.11.46.5 Bachelor of Arts (B.A.) – Minor Concentration Russian Culture (18 credits)**

Revision, August 2011. Start of revision.

The Minor Concentration Russian Culture is designed primarily as an adjunct to area studies and/or programs in the humanities or social sciences. As there are no Russian language requirements, this program may not be expanded to the Major Concentration Russian.

There are no prerequisites for Russian (RUSS) courses in the program. For pre/corequisites and availability of Anthropology (ANTH), Economics (ECON), History (HIST), Jewish Studies (JWST), Political Science (POLI), and Sociology (SOCI) courses, students should consult the offering department and Class Schedule.

**Complementary Courses (18 credits)**

18 credits selected with the following specifications:

12 credits from Group A

6 credits from Group B

**Group A**

12 credits from:

**RUSS 217**  
(3)  Russia's Eternal Questions

**RUSS 218**  
(3)  Russian Literature in Revolution

**RUSS 219**  
(3)  Russian Literature in Recovery

**RUSS 223**  
(3)  Russian 19th Century: Literary Giants 1

**RUSS 224**  
(3)  Russian 19th Century: Literary Giants 2

**RUSS 510**  
(3)  High Stalinist Culture

**RUSS 585**  
(3)  Woman in Russian Culture
Group B

6 credits from:

- ANTH 303 (3) Ethnographies of Post-socialism
- ECON 331 (3) Economic Development: Russia and USSR
- ECON 340 (3) Ex-Socialist Economies
- HIST 216 (3) History of Russia to 1801
- HIST 226 (3) Eastern Europe in 20th Century
- HIST 236 (3) Russia from 1801 to 1991
- HIST 306 (3) East Central Europe Since 1944
- HIST 312 (3) Hist of Consumption in Canada
- HIST 313 (3) Eastern Europe: 1740-1914
- HIST 316 (3) Russia: Revolutions 1905 and 1917
- HIST 326 (3) Russia from 1905 to Present
- HIST 406 (3) Petrine and Catherinian Russia
- HIST 446 (3) Russian Thought to 1825
- HIST 456 (3) Russian Intellectual History 1825-1917
- HIST 476D1 (3) Seminar: Topics in Russian History
- HIST 476D2 (3) Seminar: Topics in Russian History
- JWST 303 (3) The Soviet Jewish Experience
- POLI 329 (3) Russian and Soviet Politics
- POLI 331 (3) Politics in East Central Europe
- POLI 332 (3) Politics of Former Soviet Republics
- POLI 419 (3) Transitions from Communism
- SOCI 455 (3) Post-Socialist Societies

Revision, August 2011. End of revision.

3.11.46.6 Bachelor of Arts (B.A.) - Major Concentration Russian (36 credits)

Enrolment in courses above the 200 level is by permission of the Department only.

By arrangement with the Department and subject to University approval, transfer credits will be accepted from Department-approved exchange/immersion programs.

Required Courses (18 credits)

The required courses are designed to give students a basic working knowledge of Russian. Students who can demonstrate to the Department that they have acquired the equivalent competence elsewhere will replace these credits with courses chosen from the complementary course lists.

- RUSS 210 (3) Elementary Russian Language 1
- RUSS 211 (3) Elementary Russian Language 2
- RUSS 310 (3) Intermediate Russian Language 1
- RUSS 311 (3) Intermediate Russian Language 2
- RUSS 400 (3) Advanced Russian Language 1
- RUSS 401 (3) Advanced Russian Language 2

Complementary Courses (18 credits)

18 credits selected from two lists.
12 credits from:

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<thead>
<tr>
<th>Course</th>
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<th>Title</th>
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<td>RUSS 217</td>
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<td>Russian Literature in Recovery</td>
</tr>
<tr>
<td>RUSS 223</td>
<td>(3)</td>
<td>Russian 19th Century: Literary Giants 1</td>
</tr>
<tr>
<td>RUSS 224</td>
<td>(3)</td>
<td>Russian 19th Century: Literary Giants 2</td>
</tr>
<tr>
<td>RUSS 300</td>
<td>(3)</td>
<td>Russian for Heritage Speakers 1</td>
</tr>
<tr>
<td>RUSS 301</td>
<td>(3)</td>
<td>Russian for Heritage Speakers 2</td>
</tr>
<tr>
<td>RUSS 327</td>
<td>(3)</td>
<td>Outlines 19th Century Russian Literature: Romantic Period</td>
</tr>
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<td>RUSS 328</td>
<td>(3)</td>
<td>Outlines 19th Century Russian Literature: Russian Realism</td>
</tr>
<tr>
<td>RUSS 330</td>
<td>(3)</td>
<td>Introduction to Soviet Russian Literature before WWII</td>
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<tr>
<td>RUSS 331</td>
<td>(3)</td>
<td>Introduction to Soviet Russian Literature after WWII</td>
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6 credits from:

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<td>RUSS 390</td>
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<td>RUSS 450</td>
<td>(3)</td>
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</tr>
<tr>
<td>RUSS 455</td>
<td>(3)</td>
<td>History of Modern Russian Language</td>
</tr>
<tr>
<td>RUSS 458</td>
<td>(3)</td>
<td>Development Russian Novel before Turgenev</td>
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<tr>
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<td>(3)</td>
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</tr>
<tr>
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<td>The Age of Pushkin</td>
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</tr>
<tr>
<td>RUSS 510</td>
<td>(3)</td>
<td>High Stalinist Culture</td>
</tr>
<tr>
<td>RUSS 585</td>
<td>(3)</td>
<td>Woman in Russian Culture</td>
</tr>
</tbody>
</table>

* Note: Students must submit project proposals to their departmental adviser by March 15th or November 15th of the preceding term for individual reading and independent research courses.

**3.11.46.7 Bachelor of Arts (B.A.) - Honours Russian (60 credits)**

The Honours Russian program is for students intending to pursue graduate studies or advanced careers in the field. Students must complete 60 credits in the program, and according to Faculty regulations, Honours students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.00.

By arrangement with the Department and subject to University approval, transfer credits will be accepted from Department-approved exchange/immersion programs.

Students who have acquired language competency elsewhere will replace lower-level courses with upper-level courses. A total of 9 credits may be taken in courses offered by other departments in the Faculty; these are listed at the end of this section.

For admission into the Honours program and approval of all course selections, students must regularly consult with an academic adviser in the Department.

Honours students, according to Faculty regulations, also must complete at least a minor concentration (18 credits) in another academic unit.

**U1 Required Courses (12 credits)**
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 215</td>
<td>(6)</td>
<td>Elementary Russian Language Intensive 1</td>
</tr>
<tr>
<td>RUSS 316</td>
<td>(6)</td>
<td>Intermediate Russian Language Intensive 2</td>
</tr>
</tbody>
</table>

**U1 Complementary Courses (6 credits)**

6 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 217</td>
<td>(3)</td>
<td>Russia's Eternal Questions</td>
</tr>
<tr>
<td>RUSS 218</td>
<td>(3)</td>
<td>Russian Literature in Revolution</td>
</tr>
<tr>
<td>RUSS 219</td>
<td>(3)</td>
<td>Russian Literature in Recovery</td>
</tr>
<tr>
<td>RUSS 223</td>
<td>(3)</td>
<td>Russian 19th Century: Literary Giants 1</td>
</tr>
<tr>
<td>RUSS 224</td>
<td>(3)</td>
<td>Russian 19th Century: Literary Giants 2</td>
</tr>
<tr>
<td>RUSS 300</td>
<td>(3)</td>
<td>Russian for Heritage Speakers 1</td>
</tr>
<tr>
<td>RUSS 301</td>
<td>(3)</td>
<td>Russian for Heritage Speakers 2</td>
</tr>
</tbody>
</table>

**U2 Required Courses (24 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 327</td>
<td>(3)</td>
<td>Outlines 19th Century Russian Literature: Romantic Period</td>
</tr>
<tr>
<td>RUSS 328</td>
<td>(3)</td>
<td>Outlines 19th Century Russian Literature: Russian Realism</td>
</tr>
<tr>
<td>RUSS 330</td>
<td>(3)</td>
<td>Introduction to Soviet Russian Literature before WWII</td>
</tr>
<tr>
<td>RUSS 331</td>
<td>(3)</td>
<td>Introduction to Soviet Russian Literature after WWII</td>
</tr>
<tr>
<td>RUSS 415</td>
<td>(6)</td>
<td>Advanced Russian Language Intensive 1</td>
</tr>
<tr>
<td>RUSS 416</td>
<td>(6)</td>
<td>Advanced Russian Language Intensive 2</td>
</tr>
</tbody>
</table>

**U3 Required Courses (12 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 452</td>
<td>(3)</td>
<td>Advanced Russian Language and Syntax 1</td>
</tr>
<tr>
<td>RUSS 453</td>
<td>(3)</td>
<td>Advanced Russian Language and Syntax 2</td>
</tr>
<tr>
<td>RUSS 490*</td>
<td>(3)</td>
<td>Honours Seminar 01</td>
</tr>
<tr>
<td>RUSS 491*</td>
<td>(3)</td>
<td>Honours Seminar 02</td>
</tr>
</tbody>
</table>

* Note: Students must submit project proposals to their departmental adviser by March 15th or November 15th of the preceding term.

**Additional Complementary Courses (6 credits)**

6 credits selected from courses offered by Russian Studies and other departments.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUSS 385</td>
<td>(3)</td>
<td>Russian Drama</td>
</tr>
<tr>
<td>RUSS 390</td>
<td>(3)</td>
<td>Special Topics in Russian</td>
</tr>
<tr>
<td>RUSS 450</td>
<td>(3)</td>
<td>Reading the 20th Century</td>
</tr>
<tr>
<td>RUSS 455</td>
<td>(3)</td>
<td>History of Modern Russian Language</td>
</tr>
<tr>
<td>RUSS 458</td>
<td>(3)</td>
<td>Development Russian Novel before Turgenev</td>
</tr>
<tr>
<td>RUSS 459</td>
<td>(3)</td>
<td>Russian Novel Pushkin-Gogol</td>
</tr>
<tr>
<td>RUSS 460</td>
<td>(3)</td>
<td>Russian Novel 1860-1900 1</td>
</tr>
<tr>
<td>RUSS 461</td>
<td>(3)</td>
<td>Russian Novel 1860-1900 2</td>
</tr>
<tr>
<td>RUSS 465</td>
<td>(3)</td>
<td>Russian Modernism 1</td>
</tr>
<tr>
<td>RUSS 468</td>
<td>(3)</td>
<td>The Age of Pushkin</td>
</tr>
<tr>
<td>RUSS 470*</td>
<td>(3)</td>
<td>Individual Reading Course</td>
</tr>
<tr>
<td>RUSS 471*</td>
<td>(3)</td>
<td>Independent Research</td>
</tr>
</tbody>
</table>
RUSS 475 (3) Special Topics in Russian Culture
RUSS 500 (3) Special Topics
RUSS 510 (3) High Stalinist Culture
RUSS 585 (3) Woman in Russian Culture

* Note: Students must submit project proposals to their departmental adviser by March 15th or November 15th of the preceding term for individual reading and independent research courses.

For pre/corequisites and availability of Anthropology (ANTH), Economics (ECON), History (HIST), Jewish Studies (JWST), Political Science (POLI) and Sociology (SOCI) courses, students should consult the offering department and Class Schedule.

ANTH 303 (3) Ethnographies of Post-socialism
ECON 331 (3) Economic Development: Russia and USSR
ECON 340 (3) Ex-Socialist Economies
HIST 216 (3) History of Russia to 1801
HIST 226 (3) Eastern Europe in 20th Century
HIST 236 (3) Russia from 1801 to 1991
HIST 306 (3) East Central Europe Since 1944
HIST 312 (3) Hist of Consumption in Canada
HIST 313 (3) Eastern Europe: 1740-1914
HIST 316 (3) Russia: Revolutions 1905 and 1917
HIST 326 (3) Russia from 1905 to Present
HIST 406 (3) Petrine and Catherine Russia
HIST 446 (3) Russian Thought to 1825
HIST 456 (3) Russian Intellectual History 1825-1917
HIST 476D1 (3) Seminar: Topics in Russian History
HIST 476D2 (3) Seminar: Topics in Russian History
JWST 303 (3) The Soviet Jewish Experience
POLI 329 (3) Russian and Soviet Politics
POLI 331 (3) Politics in East Central Europe
POLI 332 (3) Politics of Former Soviet Republics
POLI 419 (3) Transitions from Communism
SOCI 455 (3) Post-Socialist Societies

3.11.46.8 Bachelor of Arts (B.A.) - Joint Honours Component Russian (36 credits)

Students wishing to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Prior to registering for each Joint Honours component, students should consult an adviser in each department for approval of their course selection and their interdisciplinary research project (if applicable). Twelve credits in Russian and 12 credits in the cooperating department are normally taken each year.

According to Faculty regulations, Joint Honours students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.00. Departments may require a higher program GPA. Joint Honours students must meet the requirements of both components of their program.

The specific course requirements for the 36-credit Joint Honours Component Russian program are determined on an individual basis in consultation with the student's program adviser(s).

Prior to registering for each Joint Honours component, students must see advisers in the respective departments for approval of their selection. Departmental advisers will only approve combinations that are feasible, given the nature of the research project that would be involved. Students who neglect to obtain prior approval may jeopardize their graduation.
3.11.47 Science for Arts Students

3.11.47.1 Location

Prof. Louis Lefebvre
Stewart Biology Building, Room W6/10
Telephone: 514-398-6457
Email: louis.lefebvre@mcgill.ca

Nancy Nelson
Stewart Biology Building, Room W3/25
Telephone: 514-398-4109
Email: nancy.nelson@mcgill.ca

3.11.47.2 About Science for Arts Students

Students in the Faculty of Arts who have an interest in Science can choose between a minor program (15 credits in an area of Science plus one required course) or can take electives for which they have the required prerequisites. Not all courses are available in any given year.

For more information, consult section 3.11.47.4: Bachelor of Arts (B.A.) – Minor Concentration Science for Arts Students (18 credits).

3.11.47.3 Science for Arts Students Faculty

Director

Professor Louis Lefebvre (Biology), 514-398-6457, louis.lefebvre@mcgill.ca

3.11.47.4 Bachelor of Arts (B.A.) – Minor Concentration Science for Arts Students (18 credits)

Revision, August 2011. Start of revision.

Freshman students interested in this Minor concentration should seek advice at the earliest opportunity, by contacting the Program Adviser. In general, students should declare their intention to obtain this Minor concentration during their U1 year and consult the Program Adviser regarding approval of courses to meet the requirements.

Students select one of the following disciplinary areas as their area of specialization for the program:

- Atmospheric and Oceanic Sciences
- Biochemistry
- Biology - Cell and Molecular Stream, Organismal Stream
- Chemistry
- Earth and Planetary Sciences
- Geography
- Mathematics and Statistics
- Microbiology and Immunology
- Pathology
- Physics
- Physiology
- Psychology

This Minor concentration is administered by the Department of Biology. For more information contact the Program Adviser, Ms. Nancy Nelson in the Biology Department, Room W3/25, Stewart Biology Building, 514-398-4109; or the Program Director, Professor Louis Lefebvre, Room W6/10, Stewart Biology Building, 514-398-6457.

Required Course (3 credits)

BIOL 210 (3) Perspectives of Science

Complementary Courses (15 credits)
15 credits taken in one of the disciplinary areas given below. Where suggested courses have prerequisites at the 200 or 300 level associated with them, credit for the associated prerequisites may also be counted as part of the 15 credits.

Prerequisites at the 100 level cannot be counted toward the Minor concentration.

With the prior written approval of the Program Adviser, an appropriate alternative set of courses may be substituted.

**Disciplinary Areas**

**Atmospheric and Oceanic Sciences**

Prerequisites which cannot be counted toward the Minor concentration: MATH 140 and MATH 141 or equivalents; PHYS 101 or PHYS 131 and PHYS 102 or PHYS 142 or equivalents recommended.

ATOC 214 (3) Introduction: Physics of the Atmosphere
ATOC 215 (3) Oceans, Weather and Climate
ATOC 309 (3) Weather Radars and Satellites
ATOC 315 (3) Thermodynamics and Convection
MATH 222 (3) Calculus 3

**Biochemistry**

Prerequisites which cannot be counted toward the Minor concentration: BIOL 111 and BIOL 112, CHEM 110 and CHEM 120, or their equivalents.

ANAT 262 (3) Introductory Molecular and Cell Biology
BIOC 212 (3) Molecular Mechanisms of Cell Function
BIOL 200 (3) Molecular Biology
CHEM 212 (4) Introductory Organic Chemistry 1

Students who have completed CHEM 212 and CHEM 222 or their equivalents may take one or both of the following:

BIOC 311 (3) Metabolic Biochemistry
BIOC 312 (3) Biochemistry of Macromolecules

**Biology**

Students interested in Biology can choose between two streams. One is oriented toward cell and molecular biology and leads to upper-level courses in developmental biology, human genetics, molecular biology, or allied fields. The other is oriented more toward organismal biology and leads to upper-level courses in biodiversity, ecology, neurobiology, behaviour, or conservation biology. See Ms. Nancy Nelson in the Biology Department, Room W3/25, Stewart Biology Building, to arrange a counselling session on the choice of courses above the 200 level.

Prerequisites which cannot be counted toward the Minor concentration: BIOL 111 and BIOL 112, plus CHEM 110 and CHEM 120 or their equivalents; in addition, for the Organismal Stream, PHYS 101 or PHYS 131; and MATH 140 and PHYS 102 or PHYS 142 if taking BIOL 306.

**Biology - Cell and Molecular Stream**

Note: CHEM 212 or its equivalent is a corequisite for BIOL 200.

BIOL 200 (3) Molecular Biology
BIOL 201 (3) Cell Biology and Metabolism
BIOL 202 (3) Basic Genetics
CHEM 212 (4) Introductory Organic Chemistry 1

Plus a selected subset of these or related upper-level courses:

BIOL 300 (3) Molecular Biology of the Gene
BIOL 303 (3) Developmental Biology
BIOL 313 (3) Eukaryotic Cell Biology
Molecular Biology of Oncogenes
BIOL 314  
(3)  
Human Genetics Applied
BIOL 370  
(3)  

**Biology - Organismal Stream**

CHEM 212 or its equivalent is corequisite for BIOL 200.

BIOL 200  
(3)  
Molecular Biology
BIOL 201  
(3)  
Cell Biology and Metabolism
BIOL 205  
(3)  
Biology of Organisms
BIOL 215  
(3)  
Introduction to Ecology and Evolution
CHEM 212  
(4)  
Introductory Organic Chemistry 1

Plus one or more of these or related upper-level courses:

BIOL 304  
(3)  
Evolution
BIOL 305  
(3)  
Animal Diversity
BIOL 306  
(3)  
Neural Basis of Behaviour
BIOL 307  
(3)  
Behavioural Ecology/Sociobiology
BIOL 308  
(3)  
Ecological Dynamics
BIOL 310  
(3)  
Biodiversity and Ecosystems
BIOL 465  
(3)  
Conservation Biology

**Chemistry**

Prerequisites which cannot be counted toward the Minor concentration: BIOL 112, and CHEM 110 and CHEM 120, or their equivalents; MATH 140, and PHYS 101 or PHYS 131, and PHYS 102 or PHYS 142, or their equivalents if taking CHEM 334.

The Department also strongly encourages students to take one or more courses involving a laboratory because the science of chemistry is rooted in laboratory experience.

Students select 15 credits from the following courses and their associated prerequisites:

Note: CHEM 212 or its equivalent is prerequisite to all 200-level or higher courses.

CHEM 212  
(4)  
Introductory Organic Chemistry 1
CHEM 222  
(4)  
Introductory Organic Chemistry 2
CHEM 281  
(3)  
Inorganic Chemistry 1
CHEM 302  
(3)  
Introductory Organic Chemistry 3

One of:

CHEM 203  
(3)  
Survey of Physical Chemistry
CHEM 204  
(3)  
Physical Chemistry/Biological Sciences 1

One of:

CHEM 301  
(3)  
Modern Inorganic Chemistry 2
CHEM 381  
(3)  
Inorganic Chemistry 2
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 307</td>
<td>(3)</td>
<td>Analytical Chemistry of Pollutants</td>
</tr>
<tr>
<td>CHEM 334</td>
<td>(3)</td>
<td>Advanced Materials</td>
</tr>
<tr>
<td>CHEM 287</td>
<td>(2)</td>
<td>Introductory Analytical Chemistry</td>
</tr>
<tr>
<td>CHEM 297</td>
<td>(1)</td>
<td>Introductory Analytical Chemistry Laboratory</td>
</tr>
</tbody>
</table>

**Computer Science**

Please see calendar listing for Bachelor of Arts Minor Concentrations in Computer Science.

**Earth and Planetary Sciences**

A combination of EPSC 201 or EPSC 233, together with EPSC 210 and EPSC 212 provide a grounding in Earth and Planetary Sciences and preparation for more specialized courses.

Students should meet with an EPSC departmental adviser prior to selecting their courses, as some 200-level courses have specific prerequisites.

Prerequisites which cannot be counted toward the Minor concentration: CHEM 110 and CHEM 120, and MATH 140 or equivalents.

Students select 15 credits from the following courses and their associated prerequisites:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSC 201*</td>
<td>(3)</td>
<td>Understanding Planet Earth</td>
</tr>
<tr>
<td>EPSC 203</td>
<td>(3)</td>
<td>Structural Geology</td>
</tr>
<tr>
<td>EPSC 210</td>
<td>(3)</td>
<td>Introductory Mineralogy</td>
</tr>
<tr>
<td>EPSC 212</td>
<td>(3)</td>
<td>Introductory Petrology</td>
</tr>
<tr>
<td>EPSC 220</td>
<td>(3)</td>
<td>Principles of Geochemistry</td>
</tr>
<tr>
<td>EPSC 231</td>
<td>(3)</td>
<td>Field School 1</td>
</tr>
<tr>
<td>EPSC 233*</td>
<td>(3)</td>
<td>Earth and Life History</td>
</tr>
<tr>
<td>EPSC 320</td>
<td>(3)</td>
<td>Elementary Earth Physics</td>
</tr>
<tr>
<td>EPSC 334</td>
<td>(3)</td>
<td>Invertebrate Paleontology</td>
</tr>
<tr>
<td>EPSC 425</td>
<td>(3)</td>
<td>Sediments to Sequences</td>
</tr>
</tbody>
</table>

* Note: Students select either EPSC 201 or EPSC 233.

**Geography**

(Students in any Minor or Major concentration or Honours program in Geography cannot choose this disciplinary area.)

Geography advisers recommend including some preparation in chemistry, statistics, and calculus for study in this area even if formal prerequisites are not in place.

Students select 15 credits from the following courses and their associated prerequisites:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 203</td>
<td>(3)</td>
<td>Environmental Systems</td>
</tr>
<tr>
<td>GEOG 205</td>
<td>(3)</td>
<td>Global Change: Past, Present and Future</td>
</tr>
<tr>
<td>GEOG 272</td>
<td>(3)</td>
<td>Earth's Changing Surface</td>
</tr>
<tr>
<td>GEOG 305</td>
<td>(3)</td>
<td>Soils and Environment</td>
</tr>
<tr>
<td>GEOG 321</td>
<td>(3)</td>
<td>Climatic Environments</td>
</tr>
<tr>
<td>GEOG 322</td>
<td>(3)</td>
<td>Environmental Hydrology</td>
</tr>
<tr>
<td>GEOG 350</td>
<td>(3)</td>
<td>Ecological Biogeography</td>
</tr>
<tr>
<td>GEOG 372</td>
<td>(3)</td>
<td>Running Water Environments</td>
</tr>
</tbody>
</table>

**Mathematics and Statistics**

(Students in any Minor or Major concentration or Honours program in Mathematics and Statistics cannot choose this disciplinary area.)
Prerequisites which cannot be counted toward the Minor: MATH 133, MATH 140, and MATH 141 or equivalents.

Suggested courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 203</td>
<td>3</td>
<td>Principles of Statistics 1</td>
</tr>
<tr>
<td>MATH 204</td>
<td>3</td>
<td>Principles of Statistics 2</td>
</tr>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 223</td>
<td>3</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 338</td>
<td>3</td>
<td>History and Philosophy of Mathematics</td>
</tr>
</tbody>
</table>

**Microbiology and Immunology**

Prerequisites which cannot be counted toward the Minor concentration: BIOL 111 and BIOL 112, CHEM 110 and 120 or their equivalents.

Note: CHEM 212 or its equivalent is prerequisite, or corequisite, to these courses.

Students select 15 credits from the following courses and their associated prerequisites:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 200</td>
<td>3</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 201*</td>
<td>3</td>
<td>Cell Biology and Metabolism</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>MIMM 211</td>
<td>3</td>
<td>Introductory Microbiology</td>
</tr>
<tr>
<td>MIMM 314</td>
<td>3</td>
<td>Immunology</td>
</tr>
<tr>
<td>MIMM 323</td>
<td>3</td>
<td>Microbial Physiology</td>
</tr>
<tr>
<td>MIMM 324</td>
<td>3</td>
<td>Fundamental Virology</td>
</tr>
</tbody>
</table>

* Note: Students select BIOL 201 or ANAT 212 or BIOC 212.

**Pathology**

Prerequisites which cannot be counted toward the Minor concentration: BIOL 111 and BIOL 112, plus CHEM 110 and CHEM 120, MATH 140, and PHYS 101 and PHYS 102 or PHYS 142, or their equivalents.

PATH 300, together with its associate prerequisites, is well suited to students with an interest in medicine.

Students select 15 credits from the following courses and their associated prerequisites:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 200</td>
<td>3</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 201*</td>
<td>3</td>
<td>Cell Biology and Metabolism</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>PATH 300</td>
<td>3</td>
<td>Human Disease</td>
</tr>
<tr>
<td>PHGY 209</td>
<td>3</td>
<td>Mammalian Physiology 1</td>
</tr>
<tr>
<td>PHGY 210</td>
<td>3</td>
<td>Mammalian Physiology 2</td>
</tr>
</tbody>
</table>

* Note: Students select BIOL 201 or ANAT 212 or BIOC 212.

**Physics**

Prerequisites which cannot be counted toward the Minor concentration: PHYS 131, PHYS 142, MATH 140, MATH 141, MATH 222 or their equivalents.

Honours courses may be substituted for their Major equivalents only with the permission of the Department.

Students select 15 credits from the following courses and their associated prerequisites:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 214</td>
<td>3</td>
<td>Introductory Astrophysics</td>
</tr>
<tr>
<td>PHYS 224</td>
<td>3</td>
<td>Physics of Music</td>
</tr>
<tr>
<td>PHYS 230</td>
<td>3</td>
<td>Dynamics of Simple Systems</td>
</tr>
<tr>
<td>PHYS 232</td>
<td>3</td>
<td>Heat and Waves</td>
</tr>
<tr>
<td>PHYS 241</td>
<td>3</td>
<td>Signal Processing</td>
</tr>
</tbody>
</table>
Physiology

Prerequisites which cannot be counted towards the Minor concentration: BIOL 111 and BIOL 112, CHEM 110 and CHEM 120, MATH 140, PHYS 101 or PHYS 131, and PHYS 102 or PHYS 142, or their equivalents.

Students should select:

- BIOL 200 (3) Molecular Biology
- BIOL 201* (3) Cell Biology and Metabolism
- CHEM 212 (4) Introductory Organic Chemistry 1

* Note: Students select BIOL 201 or BIOC 212.

Both:

- PHGY 209 (3) Mammalian Physiology 1
- PHGY 210 (3) Mammalian Physiology 2

And, if credits permit, one or more of these intermediate-level Physiology courses:

- PHGY 311 (3) Channels, Synapses & Hormones
- PHGY 312 (3) Respiratory, Renal, & Cardiovascular Physiology
- PHGY 313 (3) Blood, Gastrointestinal, & Immune Systems Physiology
- PHGY 314 (3) Integrative Neuroscience

Psychology

(Students in any Minor or Major concentration or Honours program in Psychology cannot choose this disciplinary area.)

Prerequisites which cannot be counted toward the Minor concentration: PSYC 100 (or equivalent).

Students in the Minor concentration take 15 credits of Psychology selected as follows:

- PSYC 204 (3) Introduction to Psychological Statistics

Plus 6 credits from the following core courses:

- PSYC 211 (3) Introductory Behavioural Neuroscience
- PSYC 212 (3) Perception
- PSYC 213 (3) Cognition
- PSYC 215 (3) Social Psychology

Plus 6 credits Psychology courses at the 300 level or higher (excluding PSYC 305).

Revision, August 2011. End of revision.
3.11.48 Sexual Diversity Studies

3.11.48.1 Location
Institute for Gender, Sexuality, and Feminist Studies
3487 Peel Street, 2nd Floor
Montreal, Quebec H3A 1W7
Telephone: 514-398-3911
Email: info.igsf@mcgill.ca; caili.woodyard@mcgill.ca
Website: www.mcgill.ca/igsf/programs/sdst
Adviser: Caili Woodyard

3.11.48.2 About Sexual Diversity Studies
The Minor concentration in Sexual Diversity Studies is now in its seventh year at McGill University. It sets out to bring together into a coherent program much of the exciting new work and teaching in the study of sexuality across many disciplines. Fifteen departments or programs across five faculties provide courses. The program is vigorously eclectic, drawing on feminist studies, queer studies, LGBT studies, and a rich variety of other theoretical and empirical perspectives.

For further information concerning courses, consult the IGSF Teaching Programs Handbook available from the IGSF or at www.mcgill.ca/igsf. The most up-to-date information concerning courses will be on the website.

3.11.48.3 Sexual Diversity Studies Faculty

Program Committee Chair
TBA

Administrative and Student Affairs Coordinator (Student Adviser)
Caili Woodyard

Program Committee
Annmarie Adams (Architecture, IGSF Director)
Kenneth Borris (English) (on sabbatical)
Shari Brotman (Social Work)
Julia Krane (Social Work) (on sabbatical)
Brian Lewis (History and Classical Studies)
Davesh Soneji (Religious Studies)

3.11.48.4 Bachelor of Arts (B.A.) - Minor Concentration Sexual Diversity Studies (18 credits)
The Minor Concentration Sexual Diversity Studies is informed by a tradition of critical inquiry developed within various frameworks including Women's Studies and Gay, Lesbian and Queer Studies. It is designed to introduce students to the latest scholarship on the study of sexuality and sexual and gender diversity across a wide range of disciplines and cultures.

Required Course (3 credits)
SDST 250 (3) Introduction: Sexual Diversity Studies

Complementary Courses (15 credits)
15 credits from the list below.
Note: If a course has an asterisk (*), it may be counted toward the program only when the topic is appropriate for Sexual Diversity Studies.

ARCH 533* (3) New Approaches to Architectural History
CANS 308 (3) Sex and Gender in Canada
<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Course Title</th>
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<tbody>
<tr>
<td>COMS 310</td>
<td>3</td>
<td>Media and Feminist Studies</td>
</tr>
<tr>
<td>COMS 490*</td>
<td>3</td>
<td>History and Theory of Media</td>
</tr>
<tr>
<td>EAST 350</td>
<td>3</td>
<td>Gender and Sexuality in Chinese Literature</td>
</tr>
<tr>
<td>EAST 370</td>
<td>3</td>
<td>History of Sexuality in Japan</td>
</tr>
<tr>
<td>ENGL 354</td>
<td>3</td>
<td>Sexuality and Representation</td>
</tr>
<tr>
<td>ENGL 493</td>
<td>3</td>
<td>Narrative Media</td>
</tr>
<tr>
<td>GEOG 541*</td>
<td>3</td>
<td>Topics in Geography 2</td>
</tr>
<tr>
<td>HIST 323</td>
<td>3</td>
<td>History and Sexuality 1</td>
</tr>
<tr>
<td>HIST 347</td>
<td>3</td>
<td>History and Sexuality 2</td>
</tr>
<tr>
<td>HIST 420</td>
<td>3</td>
<td>Gender and Sexuality in Modern China</td>
</tr>
<tr>
<td>HIST 424</td>
<td>3</td>
<td>Gender, Sexuality &amp; Medicine</td>
</tr>
<tr>
<td>HIST 430*</td>
<td>3</td>
<td>Topics in Modern Medicine</td>
</tr>
<tr>
<td>HIST 433</td>
<td>3</td>
<td>British Queer History</td>
</tr>
<tr>
<td>HIST 448</td>
<td>3</td>
<td>Women, Gender and Sexuality in the Middle East</td>
</tr>
<tr>
<td>HIST 457*</td>
<td>3</td>
<td>Topics in Medical History</td>
</tr>
<tr>
<td>MUAR 399</td>
<td>3</td>
<td>Music and Queer Identity</td>
</tr>
<tr>
<td>PHIL 242</td>
<td>3</td>
<td>Introduction to Feminist Theory</td>
</tr>
<tr>
<td>PHIL 442</td>
<td>3</td>
<td>Topics in Feminist Theory</td>
</tr>
<tr>
<td>PSYC 436</td>
<td>3</td>
<td>Human Sexuality and Its Problems</td>
</tr>
<tr>
<td>RELG 271</td>
<td>3</td>
<td>Sexual Ethics</td>
</tr>
<tr>
<td>RELG 339</td>
<td>3</td>
<td>Gender &amp; Sexuality in Buddhism</td>
</tr>
<tr>
<td>RELG 356</td>
<td>3</td>
<td>Gender &amp; Sexuality in Hinduism</td>
</tr>
<tr>
<td>SDST 450</td>
<td>3</td>
<td>Independent Reading &amp; Research</td>
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<tr>
<td>SDST 499</td>
<td>3</td>
<td>Internship: Sexual Diversity Studies</td>
</tr>
<tr>
<td>SOCI 489</td>
<td>3</td>
<td>Gender, Deviance and Social Control</td>
</tr>
<tr>
<td>SOCI 513</td>
<td>3</td>
<td>Social Aspects HIV/AIDS in Africa</td>
</tr>
<tr>
<td>SOCI 530</td>
<td>3</td>
<td>Sex and Gender</td>
</tr>
<tr>
<td>SWRK 342</td>
<td>3</td>
<td>Practice with Gay, Lesbian, Bisexual &amp; Two-Spirit People</td>
</tr>
<tr>
<td>WMST 301*</td>
<td>3</td>
<td>Women's Studies Current Topics 1</td>
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<tr>
<td>WMST 402*</td>
<td>3</td>
<td>Women's Studies Special Topics 2</td>
</tr>
<tr>
<td>WMST 513</td>
<td>3</td>
<td>Gender, Race and Science</td>
</tr>
</tbody>
</table>

### 3.11.49 Social Studies of Medicine (SSMD)

#### 3.11.49.1 Location

Department of Social Studies of Medicine  
3647 Peel Street, 2nd Floor  
Montreal, Quebec H3A 1X1  
Telephone: 514-398-6033  
Fax: 514-398-1498  
Email: ssom@mcgill.ca  
Website: www.mcgill.ca/ssom
3.11.49.2 About Social Studies of Medicine

The Minor concentration in Social Studies of Medicine is an interdisciplinary concentration of courses designed to address the needs of (1) undergraduates preparing for one of the health professions, and (2) social sciences and humanities undergraduates who want to gain a broader interdisciplinary understanding of medicine and health issues.

The Minor concentration in Social Studies of Medicine presents medicine as a complex network of institutions, cultures, and political relations embedded in the institutions, cultures, and political relations of the larger society. Courses are divided into three groups: History of Medicine, Anthropology of Medicine, and Sociology of Medicine.

The Minor consists of 18 credits. Students are required to take 6 credits from each of the three groups.

Note: No overlap is permitted with courses counting toward the student's Major concentration.

3.11.49.3 Social Studies of Medicine (SSMD) Faculty

Chair
Alberto Cambrosio

Emeritus Professor
Margaret Lock; B.Sc.(Leeds), M.A., Ph.D.(Calif.) (Marjorie Bronfman Professor in Social Studies in Medicine)

Professors
Alberto Cambrosio; M.Env.(Sher.), Ph.D.(Montr.)
Thomas Schlich; M.D.(Marburg), Ph.D.(Freiburg) (Canada Research Chair in History of Medicine)
Andrea Tone; B.A.(Qu.), M.A., Ph.D.(Emory) (Canada Research Chair in the Social History of Medicine)
George Weisz; M.A., Ph.D.(SUNY), Dr. 3rd Cy.(Paris) (Cotton-Hannah Professor of the History of Medicine)
Allan Young; M.A.(Wash.), B.A., Ph.D.(Penn.) (Marjorie Bronfman Professor in Social Studies in Medicine)

Associate Professors
Jonathan Kimmelman; M.A., Ph.D.(Yale)
Faith Wallis; M.A., M.L.S.(McG.), Ph.D.(Tor.)

Assistant Professor
Tobias Rees; M.A.(Tübingen), Ph.D.(Calif., Berk.)

Assistant Professors (Primary Appointment: Biomedical Ethics Unit)
Jennifer Fishman; M.A.(Calif., Irvine), Ph.D.(Calif.)
Nicholas King; M.A., Ph.D.(Harv.)

Adjunct Professor
Cornelius Borck; M.A., M.D.(Free Univ., Berlin), Ph.D.(Lond.)

3.11.49.4 Bachelor of Arts (B.A.) – Minor Concentration Social Studies of Medicine (18 credits)

Revision, August 2011. Start of revision.

Complementary Courses (18 credits)
18 credits of complementary courses; 6 credits chosen from each of the following groups:
History of Medicine
Anthropology of Medicine
Sociology of Medicine
### History of Medicine

6 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 249</td>
<td>3</td>
<td>Health and the Healer in Western History</td>
</tr>
<tr>
<td>HIST 319</td>
<td>3</td>
<td>The Scientific Revolution</td>
</tr>
<tr>
<td>HIST 330</td>
<td>3</td>
<td>Science in the Medieval West</td>
</tr>
<tr>
<td>HIST 335</td>
<td>3</td>
<td>Science and Medicine in Canada</td>
</tr>
<tr>
<td>HIST 348</td>
<td>3</td>
<td>China: Science-Medicine-Technology</td>
</tr>
<tr>
<td>HIST 356</td>
<td>3</td>
<td>Medicine in the Medieval West</td>
</tr>
<tr>
<td>HIST 381</td>
<td>3</td>
<td>Colonial Africa: Health/Disease</td>
</tr>
<tr>
<td>HIST 424</td>
<td>3</td>
<td>Gender, Sexuality &amp; Medicine</td>
</tr>
<tr>
<td>HIST 430</td>
<td>3</td>
<td>Topics in Modern Medicine</td>
</tr>
<tr>
<td>HIST 449</td>
<td>3</td>
<td>Medicine in the Ancient World</td>
</tr>
<tr>
<td>HIST 452</td>
<td>3</td>
<td>Medicine in Europe 1500-1700</td>
</tr>
<tr>
<td>HIST 457</td>
<td>3</td>
<td>Topics in Medical History</td>
</tr>
<tr>
<td>HIST 458</td>
<td>3</td>
<td>Modern Medicine: Seminar</td>
</tr>
<tr>
<td>HIST 459</td>
<td>3</td>
<td>Modern Medicine: Research</td>
</tr>
<tr>
<td>HIST 466</td>
<td>3</td>
<td>Seminar: Medieval Medicine</td>
</tr>
<tr>
<td>HIST 496</td>
<td>3</td>
<td>Research: Medieval Medicine</td>
</tr>
<tr>
<td>WMST 513</td>
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<td>Gender, Race and Science</td>
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### Anthropology of Medicine

6 credits from:

<table>
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<tr>
<th>Course Code</th>
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<tr>
<td>ANTH 227</td>
<td>3</td>
<td>Medical Anthropology</td>
</tr>
<tr>
<td>ANTH 302</td>
<td>3</td>
<td>New Horizons in Medical Anthropology</td>
</tr>
<tr>
<td>ANTH 314</td>
<td>3</td>
<td>Psychological Anthropology 01</td>
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<tr>
<td>ANTH 407</td>
<td>3</td>
<td>Anthropology of the Body</td>
</tr>
<tr>
<td>ANTH 423</td>
<td>3</td>
<td>Mind, Brain and Psychopathology</td>
</tr>
<tr>
<td>ANTH 438</td>
<td>3</td>
<td>Topics in Medical Anthropology</td>
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<tr>
<td>ANTH 439</td>
<td>3</td>
<td>Theories of Development</td>
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<td>ANTH 443</td>
<td>3</td>
<td>Medical Anthropological Theory</td>
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<td>ANTH 480</td>
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<td>Special Topic 5</td>
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<td>ANTH 481</td>
<td>3</td>
<td>Special Topic 6</td>
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<td>ANTH 482</td>
<td>3</td>
<td>Special Topic 7</td>
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<td>ANTH 483</td>
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<td>Special Topic 8</td>
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<td>ANTH 484</td>
<td>3</td>
<td>Special Topic 9</td>
</tr>
<tr>
<td>ANTH 485</td>
<td>3</td>
<td>Special Topic 10</td>
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</tbody>
</table>

### Sociology of Medicine

6 credits from:

<table>
<thead>
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<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>SOCI 225</td>
<td>3</td>
<td>Medicine and Health in Modern Society</td>
</tr>
<tr>
<td>SOCI 309</td>
<td>3</td>
<td>Health and Illness</td>
</tr>
<tr>
<td>SOCI 310</td>
<td>3</td>
<td>Sociology of Mental Disorder</td>
</tr>
</tbody>
</table>
Introduction to Biomedical Knowledge
Health and Development
Gender and Health
Sociology of the Body
Medical Sociology and Social Psychiatry
Medicine and Society
Health Care Systems in Comparative Perspective
Selected Topics in Sociology of Biomedical Knowledge

Revision, August 2011. End of revision.

3.11.50 Social Work (SWRK)

3.11.50.1 Location

School of Social Work
Wilson Hall, Suite 300
3506 University Street
Montreal, Quebec H3A 2A7

Telephone: 514-398-7070
Fax: 514-398-4760
Email: undergraduate.socialwork@mcgill.ca
Website: www.mcgill.ca/socialwork

3.11.50.2 About Social Work

The School of Social Work offers an undergraduate program leading to a Bachelor of Social Work (B.S.W.) degree. The B.S.W. program:

1. prepares students for generalist social work practice in a range of health and social service positions (the B.S.W. represents the point of admission into the *Ordre des Travailleurs Sociaux et des Thérapeutes Conjugaux et Familiaux du Québec* (OTSTCFQ) and the Canadian Association of Social Workers);
2. prepares students for entry into specialized professional studies at the graduate level.

A 90-credit program is offered to students entering from CEGEP or equivalent, students who transfer from within McGill or other universities, and mature students. A 60-credit program is offered to students who already have an undergraduate degree.

Note: Quebec law requires that candidates seeking admission to the OTSTCFQ possess a working knowledge of the French language, i.e., be able to communicate verbally and in writing in that language. For further information, refer to *University Regulations and Information > Language Requirements for Professions*.

Applications are encouraged from persons of diverse backgrounds, including aboriginal peoples, members of minority groups, and persons of low income.

The objectives of the B.S.W. program are to provide an academic environment within which students will develop:

- integrated social work knowledge pertaining to its history, theoretical foundations, research base, practice modalities, and policies that influence the delivery of health and social services;
- professional skills in the well-established methods of practice with individuals, families, and groups in communities and organizations;
- an understanding of social policy in Canada, the factors, processes, and forces that shape it and the skills to intervene;
- an awareness of the various dimensions of diversity and how they intersect in an increasingly heterogeneous society;
- a sense of identity with the profession of social work, which implies awareness of self as the intervening agent in practice, a sense of responsibility that accompanies the act of intervention, and sensitivity to the ethical issues that arise in practice; and,
- a commitment to advancing knowledge and improving skills in social work practice that are the prerequisites for entering into more specialized professional studies at the graduate level.

The B.S.W. degree is offered in two ways:

1. as a three-year undergraduate B.S.W. program, and
2. as a two-year program for applicants who already have an undergraduate degree in another discipline.
3.11.50.4 Bachelor of Social Work (B.S.W.) – Two-Year Program – Admission

Admission Requirements

The minimum requirements for admission to the two-year Bachelor of Social Work program are as follows:

1. Bachelor's degree (DCS/DEC from CEGEP plus a minimum of a 90-credit, or three-year university degree; or, a high school diploma plus a minimum of a 120-credit or four-year university degree).
2. Completion of at least 9 credits (three courses) in social sciences (including Anthropology, Economics, Political Science, Psychology, Sociology, or Human Geography) at university level.
3. 3 credits (one course) in Human Development and 3 credits (one course) in Research Methods at university level.
4. 3 credits (one course) in Statistics at university or CEGEP level.
5. Minimum CGPA of 3.0 out of 4.0 (or equivalent).
6. Paid and/or voluntary work experience.

While not a prerequisite for admission, working knowledge of the French language is important not only for candidates who intend to seek admission to the OTSTCFQ, but also for those who will be completing a field placement in the province of Quebec.

More details on entrance requirements are available at www.mcgill.ca/applying.

3.11.50.5 Social Work (SWRK) Faculty

Director
Wendy Thomson

Professors
Linda Davies; B.S.W., M.S.W.(McG.), Ph.D.(N. Lond. Poly.)
Wendy Thomson; B.S.W., M.S.W.(McG.), Ph.D.(Brist.)
James Torczyner; B.H.L.(Yeshiva), M.S.W., D.S.W.(Calif.)
Nico Trocmé; B.A., M.S.W., Ph.D.(Tor.) (The Philip Fisher Chair in Social Work)

Associate Professors
Shari Brotman; B.S.W., M.S.W.(McG.), Ph.D.(Tor.)
Myriam Denov; B.A.(Tor.), B.S.W.(McG.), M.A.(Ott.), Ph.D.(Camb.)
**Associate Professors**

Sydney Duder; B.Sc., M.S.W., Dip.Adv.Soc.Wk.Pr., Ph.D.(McG.)
Amanda Grenier; B.S.W.(Windsor), M.S.W., Ph.D.(McG.)
Estelle Hopmeyer; B.A., M.S.W.(McG.)
Julia Krane; B.A.(Ott.), B.S.W.(McG.), M.S.W., Ph.D.(Tor.)
Lucyna Lach; B.A., M.S.W., Ph.D.(Tor.)

**Assistant Professors**

Sharon Bond; B.A.(Sir G. Wms.), B.Sc.(Montr.), M.S.W., Ph.D.(McG.)
Delphine Collin-Vézina; B.Sc., Ph.D.(Montr.)
Isabelle Dumont; B.A., M.A., Ph.D.(Laval)
Jill Hanley; B.A., B.S.W.(McG.), M.A.(Tufts), Ph.D.(Montr.)
Nicole Ives; B.A.(Col.), M.S.W., Ph.D.(Penn.)
David Rothwell; B.A.(Pitzer), M.S.W.(Tulane), Ph.D.(Hawaii)
Tamara Sussman; B.A., B.S.W., M.S.W.(McG.), Ph.D.(Tor.)

**Professor of Practice in Public Policy and Global Health Diplomacy**

Nick Drager; B.Sc., M.D.,C.M.(McG.), Ph.D.(Geneva)

**Field Education Program**

Francine Granner; B.S.W., M.S.W.(McG.)
Karen Hetherington; B.A.(C'dia), M.A.(Montr.)

**3.11.50.6 Bachelor of Social Work (B.S.W.) - Social Work (Three-Year Program) (90 credits)**

Field Practicum

Students in the three-year B.S.W. program complete a field placement during their second and third years, two days per week, in different settings each year. Students must have completed a minimum of 24 credits of the 90 credits of study before commencing their second year placement, and 54 credits before commencing their third-year placement.

Grading Policy

Students are required to obtain a grade of C or better in all of their Social Work courses (63-66 credits) and also in their 18 social science credits. If students receive a D in any of these courses, they must take additional courses to satisfy the program requirement. Only in an elective course will the grade of D be counted for credit.

Prerequisite for Admission to McGill's Master of Social Work (M.S.W.)

Please note that, although not a requirement for the three-year B.S.W. program, a course in statistics is a prerequisite for admission into the M.S.W. program at McGill. Students in the three-year B.S.W. program who have not previously completed a course in statistics and are planning on completing a graduate degree are, therefore, strongly encouraged to take a statistics course during their undergraduate studies.

**Required Courses (57 credits)**

- **SWRK 220** (3) History & Philosophy of Social Work
- **SWRK 221** (3) Public Social Services in Canada
- **SWRK 222** (3) Introduction to Practicum
- **SWRK 223** (3) Poverty and Inequality
- **SWRK 224** (3) Human Development Across the Lifespan
- **SWRK 320** (3) Practice with Individuals and Families 1
- **SWRK 321** (3) Introduction to Practice with Groups
- **SWRK 322** (3) Field Practice 1
- **SWRK 323** (3) Field Practice 2
Anti-Oppression Social Work Practice
Practice with Individuals and Families 2
Approaches to Community Practice
Advanced Field Practice 1
Advanced Field Practice 2
Integrative Seminar
Social Work Research
Mental Health and Illness
Social Policy and Administration
Critical Thought and Ethics in Social Work

Complementary Courses (27 credits)
Complementary courses comprise 24-27 credits of the program. These are selected with the following specifications.
6-9 credits of Social Work (SWRK) courses.
18 credits of social science courses taken in Anthropology (ANTH), Economics (ECON), Political Science (POLI), Psychology (PSYC), or Sociology (SOCI). At least 6 of these credits must be taken at the 300 level or higher or at least 9 of these credits must be taken within one department.
Courses given in other departments may be considered on an individual basis and require special permission of the B.S.W. Program Director.

Elective Courses (6 credits)
6-9 credits of electives may be chosen from a discipline other than Social Work.
Only in an elective course will the grade of D be counted for credit toward the program.
Satisfactory/Unsatisfactory (S/U) Option Policy
Please note, according to University regulations, the S/U option can only be selected for an elective course. See "Registration" and "Courses Taken under the Satisfactory/Unsatisfactory (S/U) Option".

3.11.50.7 Bachelor of Social Work (B.S.W.) - Social Work (Two-Year Program) (60 credits)
Field Practicum
Field Practice takes place in one field setting 2.5 days per week during the first academic year, and 2 days per week, in a different setting, in the second academic year.
Grading Policy
Students are required to obtain a grade of C or better in all of their courses. If students receive a D in any of these courses, they must take additional courses to satisfy the program requirement. Only in an elective course will the grade of D be counted for credit.
Application to McGill's Master of Social Work (M.S.W.)
Students in the 60-credit B.S.W. program are eligible to apply to the Master of Social Work (M.S.W.) program after successfully completing the first 30 credits of this two-year program.

Required Courses (45 credits)
SWRK 220 (3) History & Philosophy of Social Work
SWRK 221 (3) Public Social Services in Canada
SWRK 320 (3) Practice with Individuals and Families 1
SWRK 321 (3) Introduction to Practice with Groups
SWRK 322 (3) Field Practice 1
SWRK 323 (3) Field Practice 2
SWRK 325 (3) Anti-Oppression Social Work Practice
SWRK 326 (3) Practice with Individuals and Families 2
SWRK 327 (3) Approaches to Community Practice
SWRK 420 (3) Advanced Field Practice 1
SWRK 421 (3) Advanced Field Practice 2
SWRK 422 (3) Integrative Seminar
SWRK 424 (3) Mental Health and Illness
SWRK 428 (3) Social Policy and Administration
SWRK 525 (3) Critical Thought and Ethics in Social Work

Complementary Courses (12 credits)
12 credits of Social Work (SWRK) courses only.

Elective Course (3 credits)
3 credits to be taken at McGill in a discipline other than Social Work.
Only in an elective course will the grade of D be counted for credit toward the program.

Satisfactory/Unsatisfactory (S/U) Option Policy
Please note, according to University regulations, the S/U option can only be selected for an elective course. See "Registration" and "Courses Taken under the Satisfactory/Unsatisfactory (S/U) Option".

3.11.51 Sociology (SOCI)

3.11.51.1 Location
Stephen Leacock Building, Room 713
855 Sherbrooke Street West
Montreal, Quebec H3A 2T7

Undergraduate Program Information: 514-398-6868
Fax: 514-398-3403
Email: giovanna.terrasi@mcgill.ca
Website: www.mcgill.ca/sociology

3.11.51.2 About Sociology
Sociology is commonly defined as the scientific study of society. It offers the student an educational experience which is both intellectually rewarding and practically useful as a preparation for future career opportunities. It provides the student with the theoretical and analytical tools to better understand the complex social forces which affect our lives, contributing in this way to personal enrichment and more effective citizenship. It is also valuable preparation for advanced study in the social sciences, as well as for careers in the professions, management, education, law, medicine and health-related areas, social work, and communications in both the public sector and private industry.

The Department offers a minor concentration, a major concentration, and an honours program in Sociology. Although students from outside the Department may take courses in the Department without having had SOCI 210 Sociological Perspectives (except where noted otherwise), the course is recommended. The purpose of the Minor concentration is to give the student a basic understanding of the field of Sociology, while the Major concentration will provide a more comprehensive coverage of the field. The purpose of the Honours program is to permit a student to study the field in depth, and to do an Honours Project – a research paper under the supervision of a faculty member, the topic and supervisor chosen by mutual agreement between the student and the professor.

Undergraduate Adviser

Jason Carmichael
Telephone: 514-398-6838
Email: jason.carmichael@mcgill.ca

Honours Undergraduate Adviser

Jason Carmichael
Telephone: 514-398-6838
Email: jason.carmichael@mcgill.ca
### General Program Inquiries

Joanne Terrasi, Administrative and Student Affairs Coordinator  
Telephone: 514-398-6868  
Email: giovanna.terrasi@mcgill.ca

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### 3.11.51.3 Orientation Session for New Students

The Sociology Department Orientation Session will be held in Leacock 738 (7th floor of the Stephen Leacock Building, directly opposite the elevators).

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### 3.11.51.4 Sociology (SOCI) Faculty

#### Chair

TBA

#### Director, Undergraduate Studies

Matthew Lange

#### Director, Graduate Studies

Axel van den Berg

#### Emeritus Professors

Maurice Pinard; B.A., LL.L., M.A.(Montr.), Ph.D.(Johns Hop.), F.R.S.C.  
Peta Tancred; B.A.(McG.), M.A.(Montr.), Ph.D.(LSE)

#### Professors

- Alberto Cambrosio; Dip.(Basel), M.A.(Sher.), Ph.D.(Montr.) (Social Studies of Medicine)  
- John A. Hall; B.A.(Oxf.), M.A.(Penn.), Ph.D.(LSE) (James McGill Professor)  
- Céline Le Bourdais; B.Sc.(Montr.), B.Sc.(Laval), M.Sc.(Montr.), Ph.D.(Brown) (Canada Research Chair in Social Statistics and Family Change)  
- Anthony Masi; A.B.(Colgate), M.A., Ph.D.(Brown) (Provost)  
- Michael Smith; B.A.(Leic.), M.A., Ph.D.(Brown) (James McGill Professor)  
- Axel van den Berg; Kand. Doc.(Amster.), Ph.D.(McG.)  
- Morton Weinfield; B.A.(McG.), Ed.M., Ph.D.(Harv.) (Chair, Canadian Ethnic Studies)

#### Associate Professors

- Lucia Benaquisto; B.A.(SUNY, Albany), A.M., Ph.D.(Harv.)  
- Shelley Clark; B.A.(Virg.), M.A., Ph.D.(Princ.) (Canada Research Chair in Youth, Gender and Global Health)  
- Kathleen Fallon; B.A.(Calif.), M.A., Ph.D.(Ind.)  
- Matthew Lange; B.A.(Car.), M.A., Ph.D.(Brown)  
- Steven L. Rytina; B.G.S., Ph.D.(Mich.)  
- John (Jack) Sandberg; B.A.(Hunter), Ph.D.(Mich.)  
- Elaine Weiner; B.A.(Grinnell), M.A.(Flor.), Ph.D.(Mich.)

#### Assistant Professors

- Marc (Marcos) Ancelovici; B.Sc., M.Sc.(Montr.), Ph.D.(MIT)  
- Giovani Burgos; B.A.(SUNY, Albany), M.A., Ph.D.(Ind.)  
- Jason Carmichael; B.A.(Ariz. St.), M.A., Ph.D.(Ohio St.)
Assistant Professors
Amélie Quesnel-Vallée; B.Sc., M.Sc.(Montr.), M.A., Ph.D.(Duke)
Eran Shor; B.A.(Haifa), M.A.(Haifa, Stony Brook), Ph.D.(Stony Brook)
Zoua Vang; B.A.(Penn.), M.A., Ph.D.(Harv.)

Adjunct Professors
Donald Hinrichs
Ho Hon Leung
Catherine Montgomery

Associate Members
Gregory Baum (Religious Studies)
Jennifer Fishman (Social Studies of Medicine - Biomedical Ethics Unit)

Bachelor of Arts (B.A.) - Minor Concentration Sociology (18 credits)
The purpose of the Minor Concentration Sociology is to give the student a basic understanding of the field of sociology. This Minor concentration may be expanded to the Major Concentration Sociology.

U1 Required Courses (6 credits)
SOCI 210 (3) Sociological Perspectives
SOCI 211 (3) Sociological Inquiry

Complementary Courses (12 credits)
3 credits from the following:
SOCI 330 (3) Sociological Theory
SOCI 350 (3) Statistics in Social Research

9 credits of complementary courses chosen from the "Areas of Sociology" course lists below of which at least 3 credits must be taken at the 300-level or higher.

Areas of Sociology
The Department of Sociology offers courses in four substantive areas of study:
Institutions, Deviance, and Culture
Politics and Social Change
Social Stratification: Class, Ethnicity, and Gender
Work, Organizations, and the Economy
The following lists indicate the courses which are included within each substantive area. Students should use these lists when selecting their complementary courses.
The 500-level seminars in each substantive area are open to social science major concentration students in their final year and to Honours students. Minor concentration students may only register for these with the permission of the instructor.

Institutions, Deviance, and Culture
SOCI 216 (3) Social Psychology
SOCI 219 (3) Sociology of Culture
SOCI 225 (3) Medicine and Health in Modern Society
SOCI 247 (3) Family and Modern Society
<table>
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<td>SOCI 315</td>
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<td>SOCI 318</td>
<td>3</td>
<td>Television in Society</td>
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<td>SOCI 322</td>
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<td>Punishment and Prisons</td>
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<td>Selected Topics in Sociology of Biomedical Knowledge</td>
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<tr>
<td>SOCI 571</td>
<td>3</td>
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<td>SOCI 588</td>
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**Politics and Social Change**

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<td>SOCI 484</td>
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<td>Emerging Democratic States</td>
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<td>SOCI 495</td>
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<td>Social Problems and Conflicts</td>
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</table>
SOCI 507 (3) Social Change
SOCI 511 (3) Movements/Collective Action
SOCI 513 (3) Social Aspects HIV/AIDS in Africa
SOCI 519 (3) Gender and Globalization
SOCI 545 (3) Sociology of Population
SOCI 550 (3) Developing Societies
SOCI 565 (3) Social Change in Panama

Social Stratification: Class, Ethnicity, and Gender
SOCI 230 (3) Sociology of Ethnic Relations
SOCI 270 (3) Sociology of Gender
SOCI 301 (3) Comparative Ethnic Relations
SOCI 327 (3) Jews in North America
SOCI 333 (3) Social Stratification
SOCI 353 (3) Inequality and Social Conflict
SOCI 475 (3) Canadian Ethnic Studies Seminar
SOCI 510 (3) Seminar in Social Stratification
SOCI 512 (3) Ethnicity & Public Policy
SOCI 520 (3) Migration and Immigrant Groups
SOCI 530 (3) Sex and Gender
SOCI 555 (3) Comparative Historical Sociology

Work, Organizations, and the Economy
SOCI 235 (3) Technology and Society
SOCI 304 (3) Sociology of the Welfare State
SOCI 312 (3) Sociology of Work and Industry
SOCI 420 (3) Organizations
SOCI 422 (3) Health Care Providers
SOCI 470 (3) Topics in Economic Sociology

3.11.51.6 Bachelor of Arts (B.A.) - Major Concentration Sociology (36 credits)
The purpose of the Major Concentration Sociology is to give the student a comprehensive understanding of the field of sociology.

U1 Required Courses (6 credits)
SOCI 210 (3) Sociological Perspectives
SOCI 211 (3) Sociological Inquiry

U2 Required Courses (6 credits)
Note: Students who are exempted from SOCI 350 must replace it with another 300-level or higher sociology course.
SOCI 330 (3) Sociological Theory
SOCI 350 (3) Statistics in Social Research
Complementary Courses (24 credits)

24 credits of complementary courses selected with the following specifications:

- 3 credits minimum at the 400 level or higher
- 9 credits maximum at the 200 level

500-Level Seminars:

Seminars at the 500 level are open to Major concentration students in their final year.

No more than 6 credits of the current problems, independent study and/or reading courses listed below may count toward the Major concentration.

- SOCI 340 (3) Current Problems in Sociology 01
- SOCI 341 (3) Current Problems in Sociology 02
- SOCI 342 (3) Independent Study 1
- SOCI 343 (3) Independent Study 2
- SOCI 440 (3) Current Problems
- SOCI 441 (3) Current Problems in Sociology 03
- SOCI 442 (3) Independent Reading and Research 01
- SOCI 443 (3) Independent Reading and Research 02

Areas of Sociology

The Department of Sociology offers courses in four substantive areas of study:

- Institutions, Deviance, and Culture
- Politics and Social Change
- Social Stratification: Class, Ethnicity, and Gender
- Work, Organizations, and the Economy

The following lists indicate the courses which are included within each substantive area. Students should use these lists when selecting their complementary courses.

The 500-level seminars in each substantive area are open to social science Major concentration students in their final year and to Honours students. Minor concentration students may only register for these with the permission of the instructor.

Institutions, Deviance, and Culture

- SOCI 216 (3) Social Psychology
- SOCI 219 (3) Sociology of Culture
- SOCI 225 (3) Medicine and Health in Modern Society
- SOCI 247 (3) Family and Modern Society
- SOCI 250 (3) Social Problems
- SOCI 305 (3) Socialization
- SOCI 309 (3) Health and Illness
- SOCI 310 (3) Sociology of Mental Disorder
- SOCI 315 (3) Sociology of Religion
- SOCI 318 (3) Television in Society
- SOCI 322 (3) Sociology of Literature
- SOCI 338 (3) Introduction to Biomedical Knowledge
- SOCI 377 (3) Deviance
- SOCI 388 (3) Crime
- SOCI 425 (3) Sociology of the Body
- SOCI 435 (3) Popular Culture
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**Social Stratification: Class, Ethnicity, and Gender**

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<th>Course</th>
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<tr>
<td>SOCI 230</td>
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<td>Sociology of Ethnic Relations</td>
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<td>SOCI 270</td>
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<tr>
<td>SOCI 301</td>
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<td>Comparative Ethnic Relations</td>
</tr>
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</table>
Students may register for the Honours program at the beginning of their second year (U2).

To remain in the Honours program and receive an Honours degree, students must maintain a GPA of 3.40 in their program courses and, according to Faculty regulations, a minimum CGPA of 3.00 in general.

**Required Courses (21 credits)**

Note: Students who are exempted from SOCI 350 must replace it with another 300-level or higher sociology course.

**Complementary Courses (30 credits)**

30 credits of complementary sociology (SOCI) courses selected with the following specifications:

- 9 credits minimum at the 400 level or higher
- 9 credits maximum at the 200 level

500-Level Seminars:

Seminars at the 500 level are open to Honours students in their final year.

Graduate Seminar:

The graduate seminar listed below is open to final-year Honours students with adequate preparation.

**Areas of Sociology**
The Department of Sociology offers courses in four substantive areas of study:

**Institutions, Deviance, and Culture**

**Politics and Social Change**

**Social Stratification: Class, Ethnicity, and Gender**

**Work, Organizations, and the Economy**

The following lists indicate the courses which are included within each substantive area. Students should use these lists when selecting their complementary courses.

The 500-level seminars in each substantive area are open to social science major concentration students in their final year and to Honours students. Minor concentration students may only register for these with the permission of the instructor.

### Institutions, Deviance, and Culture

- **SOCI 216** (3) Social Psychology
- **SOCI 219** (3) Sociology of Culture
- **SOCI 225** (3) Medicine and Health in Modern Society
- **SOCI 247** (3) Family and Modern Society
- **SOCI 250** (3) Social Problems
- **SOCI 305** (3) Socialization
- **SOCI 309** (3) Health and Illness
- **SOCI 310** (3) Sociology of Mental Disorder
- **SOCI 315** (3) Sociology of Religion
- **SOCI 318** (3) Television in Society
- **SOCI 322** (3) Sociology of Literature
- **SOCI 338** (3) Introduction to Biomedical Knowledge
- **SOCI 377** (3) Deviance
- **SOCI 388** (3) Crime
- **SOCI 425** (3) Sociology of the Body
- **SOCI 435** (3) Popular Culture
- **SOCI 460** (3) Responses to Social Problems
- **SOCI 488** (3) Punishment and Prisons
- **SOCI 489** (3) Gender, Deviance and Social Control
- **SOCI 495** (3) Social Problems and Conflicts
- **SOCI 508** (3) Medical Sociology and Social Psychiatry
- **SOCI 515** (3) Medicine and Society
- **SOCI 525** (3) Health Care Systems in Comparative Perspective
- **SOCI 535** (3) Sociology of the Family
- **SOCI 538** (3) Selected Topics in Sociology of Biomedical Knowledge
- **SOCI 571** (3) Deviance and Social Control
- **SOCI 588** (3) Sociology of Knowledge

### Politics and Social Change

- **SOCI 222** (3) Urban Sociology
- **SOCI 234** (3) Population and Society
- **SOCI 254** (3) Development and Underdevelopment
- **SOCI 265** (3) War, States and Social Change
Sociology of Globalization (3) SOCI 307
Political Sociology 01 (3) SOCI 326
Topics in Sociology (3) SOCI 345
Dynamics of Industrial Societies (3) SOCI 354
Health and Development (3) SOCI 365
Sociology: Gender and Development (3) SOCI 370
Contemporary Social Movements (3) SOCI 386
Gender and Health (3) SOCI 390
Networks and Social Structures (3) SOCI 424
Colonialism and Society (3) SOCI 446
Post-Socialist Societies (3) SOCI 455
Emerging Democratic States (3) SOCI 484
Social Problems and Conflicts (3) SOCI 495
Social Change (3) SOCI 507
Movements/Collective Action (3) SOCI 511
Social Aspects HIV/AIDS in Africa (3) SOCI 513
Gender and Globalization (3) SOCI 519
Sociology of Population (3) SOCI 545
Developing Societies (3) SOCI 550
Social Change in Panama (3) SOCI 565

Social Stratification: Class, Ethnicity, and Gender

Sociology of Ethnic Relations (3) SOCI 230
Sociology of Gender (3) SOCI 270
Comparative Ethnic Relations (3) SOCI 301
Jews in North America (3) SOCI 327
Social Stratification (3) SOCI 333
Inequality and Social Conflict (3) SOCI 353
Canadian Ethnic Studies Seminar (3) SOCI 475
Seminar in Social Stratification (3) SOCI 510
Ethnicity & Public Policy (3) SOCI 512
Migration and Immigrant Groups (3) SOCI 520
Sex and Gender (3) SOCI 530
Comparative Historical Sociology (3) SOCI 555

Work, Organizations, and the Economy

Technology and Society (3) SOCI 235
Sociology of the Welfare State (3) SOCI 304
Sociology of Work and Industry (3) SOCI 312
Organizations (3) SOCI 420
Health Care Providers (3) SOCI 422
Topics in Economic Sociology (3) SOCI 470
3.11.51.8 Bachelor of Arts (B.A.) - Joint Honours Component Sociology (36 credits)

Students wishing to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Students may register for Joint Honours at the beginning of their second year (U2).

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable).

Joint Honours students must maintain a GPA of 3.40 in their program courses, and according to Faculty regulations, a minimum CGPA of 3.00 in general.

**Required Courses (18 credits)**

Note: Students who are exempted from SOCI 350 must replace it with another 300-level or higher sociology course.

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<thead>
<tr>
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<td>Statistics in Social Research</td>
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<td>SOCI 461</td>
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<td>3</td>
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<tr>
<td>SOCI 480</td>
<td>Honours Project</td>
<td>3</td>
</tr>
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</table>

**Complementary Courses (18 credits)**

18 credits of complementary sociology (SOCI) courses approved by the Departmental Honours Adviser.

500-Level Seminars:

Seminars at the 500 level are open to Honours/Joint Honours students in their final year.

**Areas of Sociology**

The Department of Sociology offers courses in four substantive areas of study:

- Institutions, Deviance, and Culture
- Politics and Social Change
- Social Stratification: Class, Ethnicity, and Gender
- Work, Organizations, and the Economy

The following lists indicate the courses which are included within each substantive area. Students should use these lists when selecting their complementary courses.

The 500-level seminars in each substantive area are open to social science major concentration students in their final year and to Honours/Joint Honours students. Minor concentration students may only register for these with the permission of the instructor.

**Institutions, Deviance, and Culture**

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<td>Social Problems</td>
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<td>SOCI 305</td>
<td>Socialization</td>
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<td>Sociology of Literature</td>
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**Politics and Social Change**

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<td>Movements/Collective Action</td>
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<td>SOCI 565</td>
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**Social Stratification: Class, Ethnicity, and Gender**

698
SOCI 230 (3) Sociology of Ethnic Relations  
SOCI 270 (3) Sociology of Gender  
SOCI 301 (3) Comparative Ethnic Relations  
SOCI 327 (3) Jews in North America  
SOCI 333 (3) Social Stratification  
SOCI 353 (3) Inequality and Social Conflict  
SOCI 475 (3) Canadian Ethnic Studies Seminar  
SOCI 510 (3) Seminar in Social Stratification  
SOCI 512 (3) Ethnicity & Public Policy  
SOCI 520 (3) Migration and Immigrant Groups  
SOCI 530 (3) Sex and Gender  
SOCI 555 (3) Comparative Historical Sociology  

**Work, Organizations, and the Economy**  
SOCI 235 (3) Technology and Society  
SOCI 304 (3) Sociology of the Welfare State  
SOCI 312 (3) Sociology of Work and Industry  
SOCI 420 (3) Organizations  
SOCI 422 (3) Health Care Providers  
SOCI 470 (3) Topics in Economic Sociology  

### 3.11.52 Women’s Studies (WMST)  

#### 3.11.52.1 Location  
McGill Institute for Gender, Sexuality, and Feminist Studies (IGSF)  
3487 Peel Street, 2nd Floor  
Montreal, Quebec H3A 1W7  
Telephone: 514-398-3911  
Email: info.igsf@mcgill.ca; caili.woodyard@mcgill.ca  
Website: www.mcgill.ca/igsf/programs/wmst/  
Adviser: Caili Woodyard  

#### 3.11.52.2 About Women’s Studies  
Women's Studies is an interdisciplinary program that brings to light contemporary and historical critical issues centred on women, gender, and/or feminism. The program provides students with opportunities to explore the meanings and intersections of such categories as gender, ‘race’, class, sexual orientation, age, ability, citizenship, and national identity for example, and to examine how such categories might inform and reproduce power relationships.  
Students must see an adviser in Women's Studies at a minimum upon registering in WMST and prior to selecting courses for the final year of study.  
For further information concerning courses, consult the IGSF Teaching Programs Handbook available from the IGSF or online at www.mcgill.ca/igsf. The most up-to-date information concerning courses will be on the website.  

#### 3.11.52.3 Women’s Studies (WMST) Faculty  

**Faculty Lecturer**  
Elisabeth Engebretsen; Ph.D.(LSE)
Assistant Professor
Vrinda Narain; Ph.D.(McG.) (joint appt. with IGSF, Women's Studies, Faculty of Arts, and Faculty of Law)

31.52.3.1 Women's Studies Advisory Committee (WSAC) 2011-2012

Chair
Professor Julia Krane (School of Social Work) (on sabbatical)
TBA (Interim Chair)

Administrative and Student Affairs Coordinator (Student Adviser)
Caili Woodyard

Faculty of Arts Representatives
Professor Shari Brotman (School of Social Work)
Professor Amanda Grenier (School of Social Work)
Assistant Professor Adrienne Hurley (East Asian Studies)
Professor Berkeley Kaite (English)
Professor Carrie Rentschler (Art History and Communication Studies)
Professor Alanna Thain (English)

Representatives from Other Faculties
Professor Vrinda Narain (Faculty of Law and IGSF)
Professor Ada Sinacore (Dept. of Educational and Counselling Psychology, Faculty of Education)
Professor Davesh Soneji (Faculty of Religious Studies)

Ex-officio
Professor Annmarie Adams, Director, IGSF (Architecture)

3.11.52.4 Bachelor of Arts (B.A.) - Minor Concentration Women's Studies (18 credits)
This Minor concentration may be expanded to the Major Concentration Women's Studies.

Required Courses (6 credits)
WMST 200 (3)  Introduction to Women's Studies
WMST 303 (3)  Feminist Theory and Research

Complementary Course Group B (12 credits)
Minimum of 6 credits must be at the 300 level or higher.
Maximum of 6 credits will be accepted from approved exchange programs by arrangement with the Chair of the Women's Studies Advisory Committee and subject to University approval, transfer credits will be accepted from approved.
Group B includes courses that are centrally focused on women and/or gender and/or feminism. They are offered by a range of faculties and disciplines.

ANTH 341 (3)  Women in Cross-cultural Perspective
ANTH 342 (3)  Gender, Inequality and the State
ANTH 413 (3)  Gender in Archaeology
ARTH 352 (3)  Feminism in Art and Art History
CLAS 370 (3)  Women in Greek Drama
CMPL 504 (3)  Feminist Legal Theory

2011-2012, Undergraduate Programs, Courses and University Regulations, McGill University (Published August 17, 2011)
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<td>Women Writers of China</td>
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<td>EAST 370</td>
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<td>History of Sexuality in Japan</td>
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<td>3</td>
<td>The Chinese Family in History</td>
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<td>EAST 466</td>
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<td>Feminism and Japan</td>
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<td>EDPE 515</td>
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<td>Gender Identity Development</td>
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<td>Feminist Approaches to Cultural Studies</td>
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<td>Studies: Women's Writing and Feminist Theory</td>
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**Complementary Course Group B: Special Topics Courses**

The courses below are acceptable ONLY when the topic is appropriate for Women's Studies (centrally focused on women and/or gender and/or feminism) and there is documentation on file for the given year.

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<td>COMS 492</td>
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ENGL 430 (3) Studies in Drama
ENGL 431 (3) Studies in Drama
ENGL 438 (3) Studies in Literary Form
ENGL 467 (3) Advanced Studies in Theatre History
ENGL 480 (3) Studies in History of Film 1
ENGL 490 (3) Culture and Critical Theory 2
ENGL 500 (3) Middle English
ENGL 528 (3) Canadian Literature
GEOG 541 (3) Topics in Geography 2
GERM 362 (3) 20th Century Literature Topics
GERM 366 (3) Postwar German Literature/Film
HIST 398 (3) Topics in Italian History
HIST 426 (3) Topics: British Cultural History
HIST 429 (3) Topics: Canadian Family History
HIST 470D1 (3) Topics: Historical Interpretation
HIST 470D2 (3) Topics: Historical Interpretation
HIST 493D1 (3) Topics: Canadian Social History
HIST 493D2 (3) Topics: Canadian Social History
JWST 314 (3) Denominations in North American Judaism
JWST 351 (3) Studies in Modern Jewish Literature
PHIL 544 (3) Political Theory
POLI 422 (3) Developing Areas/Topics 2
POLI 459 (3) Topics in Political Theory 2
RELG 336 (3) Contemporary Theological Issues

3.11.52.5 Bachelor of Arts (B.A.) - Major Concentration Women's Studies (36 credits)

Required Courses (6 credits)
WMST 200 (3) Introduction to Women's Studies
WMST 303 (3) Feminist Theory and Research

Complementary Courses (30 credits)
Overview of the specifications for the 30 complementary credits:
3 credits from a list of Women's Studies (WMST) courses and
27 remaining credits with a minimum of 6 credits at the 400 or 500 level with:
12 credits selected from Group A courses and
15 credits selected from Group B courses
Maximum 12 transfer credits will be accepted from approved exchange programs by arrangement with the Chair of the Women's Studies Advisory Committee and subject to University approval.

Women's Studies (WMST)
3 credits from:
WMST 301 (3) Women's Studies Current Topics 1
WMST 302 (3) Women's Studies Current Topics 2
Women's Studies Special Topics 1 (3) WMST 401
Women's Studies Special Topics 2 (3) WMST 402
Advanced Topics 1 (3) WMST 501
Advanced Topics 2 (3) WMST 502
Gender, Race and Science (3) WMST 513

Complementary Course Group A

12 credits from Group A

Group A courses are divided into eight sub-groups. Students may take only one course from any particular grouping. Any additional credits taken above the 12 credits from Complementary Course Group A may count as credits toward Complementary Course Group B.

Group A-1
SOCI 270 (3) Sociology of Gender

Group A-2
PHIL 242 (3) Introduction to Feminist Theory

Group A-3
COMS 310 (3) Media and Feminist Studies

Group A-4, Gender Relations in Major Societal Institutions
SOCI 247 (3) Family and Modern Society
SOCI 321 (3) Gender and Work
SOCI 390 (3) Gender and Health

Group A-5, Transnational or National Histories of Women/Gender and Sexuality
EAST 370 (3) History of Sexuality in Japan
HIST 323 (3) History and Sexuality 1
HIST 347 (3) History and Sexuality 2

Group A-6, Women/Gender and Literature
EAST 350 (3) Gender and Sexuality in Chinese Literature
EAST 351 (3) Women Writers of China
ENGL 443 (3) Contemporary Women's Fiction
ENGL 444 (3) Studies: Women's Writing and Feminist Theory

Group A-7, Women/Gender in a Religious Tradition
RELG 256 (3) Women in Judaism and Islam
RELG 338 (3) Women and the Christian Tradition
RELG 356 (3) Gender & Sexuality in Hinduism

Group A-8, Women and Health
**Complementary Course Group B**

15 credits from Group B

Students select 15 credits from the Group B lists in consultation with an adviser and identify an individual focus of study comprised of 9 credits.

Reminder: A minimum of 6 credits at the 400 or 500 level must be taken in the 27 credits of Complementary Course Groups A and B. Students will find more possible choices to meet this requirement in Group B.

Group B includes courses that are centrally focused on women and/or gender and/or feminism. They are offered by a range of faculties and disciplines.

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<tr>
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**Complementary Course Group B: Special Topics Courses**

The courses below are acceptable ONLY when the topic is appropriate for Women's Studies (centrally focused on women and/or gender and/or feminism) and there is documentation on file for the given year. Additions may be made during a particular calendar year depending on the topics of the courses offered. For final updates, see http://www.mcgill.ca/igsf.

Please note that not all courses are offered every year.
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<td>Culture and Critical Theory 2</td>
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<td>20th Century Literature Topics</td>
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<td>RELG 336</td>
<td>Contemporary Theological Issues</td>
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### 3.11.52.6 Bachelor of Arts (B.A.) - Honours Women's Studies (57 credits)

Until further notice, registration in the Honours Women's Studies program is not offered.
The Honours program offers a degree of analysis and depth of contemporary and historical critical issues centered on women, gender, and/or feminism beyond that of the Major concentration. The Honours culminates in the completion of an Honours thesis, supervised by a faculty member. Students secure the approval of a potential thesis adviser during the year before undertaking the thesis. Three credits are accorded to the thesis (graded by the thesis adviser), and 3 credits are accorded to work undertaken in the Colloquium which requires supplemental reading and writing assignments, training in research and thesis writing methods, presentation to the group of theses in progress, and response to the work of others.

Honours students must maintain an annual GPA of 3.30 in all required and complementary courses that fulfill the requirements of an Honours Component in Women's Studies, and a CGPA of 3.00.

**Required Courses (12 credits)**

- WMST 200 (3) Introduction to Women's Studies
- WMST 303 (3) Feminist Theory and Research
- WMST 495D1 (1.5) Honours/Joint Honours Colloquium
- WMST 495D2 (1.5) Honours/Joint Honours Colloquium
- WMST 497D1 (1.5) Honours/Joint Honours Thesis
- WMST 497D2 (1.5) Honours/Joint Honours Thesis

**Complementary Courses (45 credits)**

Overview of the specifications for the 45 complementary credits:
- 6 credits from a list of Women's Studies (WMST) courses and
- 12 credits selected from Group A courses and
- 27 credits selected from Group B courses

Over the entire 45 credits,
- 9 credits minimum must be at the 400 or 500 level and
- 18 credits maximum may be at the 200 level.

Maximum 18 transfer credits will be accepted from approved exchange programs by arrangement with the Chair of WSAC and subject to University approval.

**Women's Studies (WMST)**

6 credits from:

- WMST 301 (3) Women's Studies Current Topics 1
- WMST 302 (3) Women's Studies Current Topics 2
- WMST 401 (3) Women's Studies Special Topics 1
- WMST 402 (3) Women's Studies Special Topics 2
- WMST 501 (3) Advanced Topics 1
- WMST 502 (3) Advanced Topics 2
- WMST 513 (3) Gender, Race and Science

**Complementary Course Group A**

12 credits from Group A

Group A courses are divided into eight sub-groups. Students may take only one course from any particular grouping. Any additional credits taken above the 12 credits from Complementary Course Group A may count as credits toward Complementary Course Group B.

**Group A-1**

- SOCI 270 (3) Sociology of Gender

**Group A-2**

- PHIL 242 (3) Introduction to Feminist Theory
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<th>Group A-3</th>
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<th>Group A-4, Gender Relations in Major Societal Institutions</th>
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<td>RELG 356</td>
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<th>Group A-8, Women and Health</th>
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<td>27 credits from Group B</td>
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Students select 27 credits from the Group B lists in consultation with an adviser and identify an individual focus of study comprised of 15 credits.

Reminder: A minimum of 9 credits at the 400 or 500 level must be taken in the 45 credits of Complementary Courses. Students will find more possible choices to meet this requirement in Group B.

Group B includes courses that are centrally focused on women and/or gender and/or feminism. They are offered by a range of faculties and disciplines. Additions may be made during a particular calendar year depending on the central focus of the course. For final updates, see http://www.mcgill.ca/igsf/.

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EAST 370 (3) History of Sexuality in Japan
EAST 390 (3) The Chinese Family in History
EAST 466 (3) Feminism and Japan
EDPE 515 (3) Gender Identity Development
ENGL 396 (3) Women in Film and Media
ENGL 397 (3) Feminist Approaches to Cultural Studies
ENGL 443 (3) Contemporary Women’s Fiction
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HIST 332 (3) Women in Europe, 1350-1700
HIST 343 (3) Women in Post-Confederation Canada
HIST 344 (3) The Chinese Family in History
HIST 347 (3) History and Sexuality 2
HIST 354 (3) Women in Europe 1700-2000
HIST 412 (3) Women and Gender in Modern Britain
HIST 420 (3) Gender and Sexuality in Modern China
HIST 424 (3) Gender, Sexuality & Medicine
HIST 433 (3) British Queer History
HIST 439 (3) History of Women in China
HIST 448 (3) Women, Gender and Sexuality in the Middle East
HIST 463D1 (3) Topics: History of Women in Canada
HIST 463D2 (3) Topics: History of Women in Canada
HIST 525 (3) Women, Work and Family in Global History
HIST 526 (3) Women and War
HSEL 308 (3) Issues in Women's Health
HSEL 309 (3) Women's Reproductive Health
ITAL 363 (3) Gender, Literature and Society
ITAL 383 (3) Women's Writing since 1880
MUAR 250 (3) Women Making Music
PHIL 242 (3) Introduction to Feminist Theory
PHIL 442 (3) Topics in Feminist Theory
PHIL 542 (3) Seminar: Feminist Theory
RELG 256 (3) Women in Judaism and Islam
RELG 338 (3) Women and the Christian Tradition
RELG 339 (3) Gender & Sexuality in Buddhism
RELG 356 (3) Gender & Sexuality in Hinduism
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**Group B: Topics Courses**

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Please note that not all courses are offered every year.

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</table>
3.11.52.7 Bachelor of Arts (B.A.) - Joint Honours Component Women's Studies (36 credits)

Until further notice, registration in this Joint Honours Component in Women's Studies is not offered.

Students wishing to study at the Honours level in two disciplines can combine Joint Honours program components in any two Arts disciplines. For a list of available Joint Honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable).

The Joint Honours component in Women's Studies offers a degree of analysis and depth of contemporary and historical critical issues centered on women, gender, and/or feminism beyond that of the Major concentration. It culminates in the completion of an Honours thesis, supervised by a faculty member. Students secure the approval of a potential thesis adviser during the year before undertaking the thesis. Three credits are accorded to the thesis (graded by the thesis adviser), and 3 credits are accorded to work undertaken in the Colloquium which requires supplemental reading and writing assignments, training in research and thesis writing methods, presentation to the group of theses in progress, and response to the work of others.

Joint Honours students must maintain an annual GPA of 3.30 in all required and complementary courses that fulfill the requirements of a Joint Honours Component in Women's Studies, and a CGPA of 3.00.

**Required Courses (12 credits)**

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<td>WMST 303</td>
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<td>Feminist Theory and Research</td>
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<td>WMST 497D1</td>
<td>1.5</td>
<td>Honours/Joint Honours Thesis</td>
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</table>
Honours/Joint Honours Thesis (1.5) WMST 497D2

Complementary Courses (24 credits)
Overview of the specifications for the 24 complementary credits:
- 3 credits from a list of Women's Studies (WMST) courses and
- 9 credits selected from Group A courses and
- 12 credits selected from Group B courses.

Over the entire 24 credits,
- 6 credits minimum must be at the 400 or 500 level and
- 12 credits maximum may be at the 200 level.

Maximum 12 transfer credits will be accepted from approved exchange programs by arrangement with the Chair of WSAC and subject to University approval.

Women's Studies (WMST)
3 credits from:
- WMST 301 (3) Women's Studies Current Topics 1
- WMST 302 (3) Women's Studies Current Topics 2
- WMST 401 (3) Women's Studies Special Topics 1
- WMST 402 (3) Women's Studies Special Topics 2
- WMST 501 (3) Advanced Topics 1
- WMST 502 (3) Advanced Topics 2
- WMST 513 (3) Gender, Race and Science

Complementary Course Group A
9 credits from Group A
Group A courses are divided into eight sub-groups. Students may take only one course from any particular grouping. Any additional credits taken above the 9 credits from Complementary Course Group A may count as credits towards Complementary Course Group B.

Group A-1
- SOCI 270 (3) Sociology of Gender

Group A-2
- PHIL 242 (3) Introduction to Feminist Theory

Group A-3
- COMS 310 (3) Media and Feminist Studies

Group A-4, Gender Relations in Major Societal Institutions
- SOCI 247 (3) Family and Modern Society
- SOCI 321 (3) Gender and Work
- SOCI 390 (3) Gender and Health

Group A-5, Transnational or National Histories of Women/Gender and Sexuality
- EAST 370 (3) History of Sexuality in Japan
- HIST 323 (3) History and Sexuality 1
HIST 347 (3) History and Sexuality 2

**Group A-6, Women/Gender and Literature**

EAST 350 (3) Gender and Sexuality in Chinese Literature
EAST 351 (3) Women Writers of China
ENGL 443 (3) Contemporary Women's Fiction
ENGL 444 (3) Studies: Women's Writing and Feminist Theory

**Group A-7, Women/Gender in a Religious Tradition**

RELG 256 (3) Women in Judaism and Islam
RELG 338 (3) Women and the Christian Tradition
RELG 356 (3) Gender & Sexuality in Hinduism

**Group A-8, Women and Health**

HSEL 308 (3) Issues in Women's Health
HSEL 309 (3) Women's Reproductive Health

**Complementary Course Group B**

12 credits from Group B

Students select 12 credits from the Group B lists in consultation with an adviser and identify an individual focus of study comprised of 9 credits.

Reminder: A minimum of 6 credits at the 400 or 500 level must be taken in the 24 credits of Complementary Courses. Students will find more possible choices to meet this requirement in Group B.

Group B includes courses that are centrally focused on women and/or gender and/or feminism. They are offered by a range of faculties and disciplines. Additions may be made during a particular calendar year depending on the central focus of the courses. For final updates, see http://www.mcgill.ca/igsf/.

Please note that not all courses are offered every year.

ANTH 341 (3) Women in Cross-cultural Perspective
ANTH 342 (3) Gender, Inequality and the State
ANTH 413 (3) Gender in Archaeology
ARTH 352 (3) Feminism in Art and Art History
CLAS 370 (3) Women in Greek Drama
CMPL 504 (3) Feminist Legal Theory
COMS 310 (3) Media and Feminist Studies
EAST 350 (3) Gender and Sexuality in Chinese Literature
EAST 351 (3) Women Writers of China
EAST 370 (3) History of Sexuality in Japan
EAST 390 (3) The Chinese Family in History
EAST 466 (3) Feminism and Japan
EDPE 515 (3) Gender Identity Development
ENGL 396 (3) Women in Film and Media
ENGL 397 (3) Feminist Approaches to Cultural Studies
ENGL 443 (3) Contemporary Women's Fiction
ENGL 444 (3) Studies: Women's Writing and Feminist Theory
GERM 364 (3) German Culture: Gender and Society
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<td>HIST 199</td>
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<td>FYS: Medieval Women and Men</td>
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<td>HIST 323</td>
<td>3</td>
<td>History and Sexuality 1</td>
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<td>HIST 332</td>
<td>3</td>
<td>Women in Europe, 1350-1700</td>
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<td>HIST 343</td>
<td>3</td>
<td>Women in Post-Confederation Canada</td>
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<td>Gender, Sexuality &amp; Medicine</td>
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<td>HIST 525</td>
<td>3</td>
<td>Women, Work and Family in Global History</td>
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<td>HSEL 308</td>
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<td>ITAL 383</td>
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<td>PHIL 242</td>
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<td>Women and the Christian Tradition</td>
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<td>Gender, Deviance and Social Control</td>
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<td>SOCI 513</td>
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**Complementary Course Group B: Special Topics Courses**

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GERM 366 (3) Postwar German Literature/Film
HIST 398 (3) Topics in Italian History
HIST 426 (3) Topics: British Cultural History
HIST 429 (3) Topics: Canadian Family History
HIST 470D1 (3) Topics: Historical Interpretation
HIST 470D2 (3) Topics: Historical Interpretation
HIST 493D1 (3) Topics: Canadian Social History
HIST 493D2 (3) Topics: Canadian Social History
JWST 314 (3) Denominations in North American Judaism
JWST 351 (3) Studies in Modern Jewish Literature
PHIL 544 (3) Political Theory
POLI 422 (3) Developing Areas/Topics 2
POLI 459 (3) Topics in Political Theory 2
RELG 336 (3) Contemporary Theological Issues

### 3.11.53 World Cinemas (FILM)

#### 3.11.53.1 Location

Interdisciplinary Programs Office, Faculty of Arts
Dawson Hall, Room 112B
853 Sherbrooke Street West
Montreal, Quebec H3A 2T6

Telephone: 514-398-4400 ext. 09557
Fax: 514-398-7185
Email: interdisciplinary.arts@mcgill.ca

Adviser: Karin Bourgeois

#### 3.11.53.2 About World Cinemas Minor Concentration

The World Cinemas program was established to coordinate faculty expertise and student interest in different national and international cinematic traditions. It offers courses across various departments, primarily in Arts, in order to train students to approach film studies from a variety of traditions and locations, while introducing them to different modes of cinematic practice and production from around the world.

#### 3.11.53.3 World Cinemas (FILM) Faculty

**Program Committee Chair**
Derek Nystrom *(English)*

**Program Committee**
Eugenio Bolongaro *(Italian Studies)*
Michael Cowan *(German Studies)*
Yuriko Furuhata *(East Asian Studies)*
Thomas LaMarre *(East Asian Studies)*
Ned Schantz *(English)*
Will Straw *(Art History and Communication Studies)*
Alanna Thain *(English)*
Bachelor of Arts (B.A.) - Minor Concentration World Cinemas (18 credits)

The Minor Concentration World Cinemas instructs students in film aesthetics, history, and theory by acquainting them with cinematic practices from different national and international traditions. This interdisciplinary program draws on the already existing teaching and research activities in several departments within the Faculty of Arts and will serve as an institutional context for future teaching and research endeavors in film studies.

Required Courses (6 credits)

- ENGL 277 (3) Introduction to Film Studies
- FILM 279 (3) Introduction to Film History

Complementary Courses (12 credits)

12 credits selected from the course list below with the following specifications:

- a minimum of 6 credits in non-U.S. cinemas;
- a maximum of 6 credits from any one department.

No more than 6 credits may be taken from the same discipline as the student's other major or minor concentrations.

- CANS 300 (3) Topics in Canadian Studies 1
- EAST 214 (3) Japanese Animation & New Media
- EAST 216 (3) Chinese Action Film
- EAST 353 (3) Approaches to Chinese Cinema
- EAST 362 (3) Japanese Cinema
- EAST 454 (3) Topics: Chinese Cinema
- EAST 467 (3) Topics: Japanese Cinema
- ENGL 279 (3) Introduction to Film as Art
- ENGL 280 (3) Introduction to Film as Mass Medium
- ENGL 350 (3) Studies in the History of Film 1
- ENGL 351 (3) Studies in the History of Film 2
- ENGL 363 (3) Studies in the History of Film 3
- ENGL 366 (3) Film Genre
- ENGL 374 (3) Film Movement or Period
- ENGL 379 (3) Film Theory
- ENGL 381 (3) A Film-Maker 1
- ENGL 382 (3) International Cinema 1
- ENGL 385 (3) Topics in Literature and Film
- ENGL 391 (3) Special Topics: Cultural Studies 1
- ENGL 393 (3) Canadian Cinema
- ENGL 450 (3) Film Aesthetics
- ENGL 451 (3) A Period in Cinema
- ENGL 479 (3) Philosophy of Film
- ENGL 480 (3) Studies in History of Film 1
- ENGL 481 (3) A Film-Maker 2
- ENGL 482 (3) International Cinema 2
- ENGL 484 (3) Seminar in the Film
- ENGL 492 (3) Image and Text
- ENGL 585 (3) Cultural Studies: Film
Bachelor of Arts and Science

4.1 About the Faculties

The B.A. & Sc. is an interdisciplinary degree intended for students who want to pursue simultaneously a program offered by Arts and one offered by Science. The B.A. & Sc. is intended for students with well-defined interdisciplinary interests, and is not meant as a "compromise" between a B.A. and a B.Sc. degree. If you are more interested in Arts, but would like to study some Science, you can do so within the B.A. degree. Similarly, if you are more interested in Science, but would like to study some Arts, you can do so within the B.Sc. degree.

To learn more about the Faculty of Arts, see Faculty of Arts > About the Faculty of Arts. To learn more about the Faculty of Science, see Faculty of Science > About the Faculty of Science.

4.2 Programs and Teaching in Arts and in Science

Programs and teaching in Arts are described under Faculty of Arts > Programs and Teaching in Arts. Those in Science are described under Faculty of Science > Programs and Teaching in Science. The two faculties jointly offer the B.A. & Sc., so students pursuing that degree are at home in both Arts and Science.

4.3 Revisions – Bachelor of Arts & Science

Biology

section 4.11.2.3: Bachelor of Arts and Science (B.A. & Sc.) - Major Concentration Biology - Cell/Molecular (36 credits)
section 4.11.2.4: Bachelor of Arts and Science (B.A. & Sc.) - Major Concentration Biology - Organismal (37 credits)

Geography

section 4.11.9.1: Bachelor of Arts and Science (B.A. & Sc.) – Interfaculty Program in Sustainability, Science and Society (54 credits)

4.4 About the Bachelor of Arts and Science (Undergraduate)

The B.A. & Sc. is an interdisciplinary degree intended for students who want to pursue simultaneously a program offered by Arts and one offered by Science. The B.A. & Sc. is intended for students with well-defined interdisciplinary interests, and is not meant as a "compromise" between a B.A. and a B.Sc. degree. If you are more interested in Arts, but would like to study some Science, you can do so within the B.A. degree. Similarly, if you are more interested in Science, but would like to study some Arts, you can do so within the B.Sc. degree.
4.4.1 Location

853 Sherbrooke Street West
Montreal, Quebec H3A 2T6
Canada

Telephone: 514-398-5442
Faculty websites: www.mcgill.ca/arts and www.mcgill.ca/science
Degree website: www.mcgill.ca/science/sousa/new_students

Science Office for Undergraduate Student Advising (SOUSA)
Website: www.mcgill.ca/science/sousa

The Science Office for Undergraduate Student Advising (SOUSA) of the Faculty of Science and the Office of the Director of Advising Services of the Faculty of Science are located in Dawson Hall. SOUSA serves students in the B.A. & Sc. and B.Sc. degrees.

4.4.2 Administrative Officers

For a listing of administrative officers in the Faculty of Arts, refer to Faculty of Arts > Administrative Officers and for those in the Faculty of Science, refer to Faculty of Science > Administrative Officers. Note that the Director of Advising Services, Science, is responsible for students pursuing a B.A. & Sc.

The B.A. & Sc. Program Administration Committee (PAC), which oversees the curriculum and regulations for the degree, consists of the following members:

**B.A. & Sc. Program Administration Committee (PAC)
(valid to August 31, 2011; the PAC membership for the 2011-2012 academic year is not yet determined)**

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Department</th>
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<tr>
<td>Chair</td>
<td>TBA</td>
<td>Chemistry</td>
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<td></td>
<td>Bruce A. Arndtsen; B.A.(Car. College), Ph.D.(Stan.) (until August 2012)</td>
<td>Economics</td>
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<td></td>
<td>Hassan Benchekroun; Diplôme d'ingenieur d'etat(École Mohamadia des Ingenieurs, Morocco), Ph.D.(Laval)</td>
<td>Anthropology</td>
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<td></td>
<td>André Costopoulos; B.A.(McG.), M.A.(Montr.), Ph.D.(Oulu)</td>
<td>History</td>
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<td></td>
<td>Nicholas Dew; B.A., M.A., Ph.D.(Oxf.)</td>
<td>Associate Dean (Academic), Faculty of Science</td>
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<td></td>
<td>Laurie Hendren; B.Sc., M.Sc.(Qu.), Ph.D.(C’nell)</td>
<td>Biology</td>
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<tr>
<td></td>
<td>Louis Lefebvre; B.Sc., M.A., Ph.D.(Montr.) (until August 2011)</td>
<td>Associate Dean (Academic), Faculty of Arts</td>
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<td>TBA</td>
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4.4.3 Science Office for Undergraduate Student Advising (SOUSA)

The Science Office for Undergraduate Student Advising (SOUSA) provides ongoing advice and guidance on academic issues related to programs, degree requirements, registration, course change, withdrawal, deferred exams, supplemental exams, academic standing, inter- and intra-faculty transfer, year or term away, transfer credits, second programs, second degrees, and graduation.

Every student in the B.A. & Sc. degree is assigned an adviser in SOUSA. The adviser’s name appears near the top of your Advising Transcript on Minerva. You can contact your adviser directly, or if you do not yet have a SOUSA adviser, email adviser.science@mcgill.ca.

SOUSA advisers provide assistance with degree planning and are a valuable referral source. They are a good place to start if you are not sure where to address your question. They also offer help managing academic situations during periods of personal, financial, or medical problems, by working with you to identify various possibilities and strategies for making informed decisions.

Special requests can be made, in writing, to the Director of Advising Services, Science, who is responsible for students pursuing a B.A. & Sc.

The Committee on Student Standing (CSS) of the Faculty of Science will consider appeals of the Director of Advising Services’ decisions. For information about CSS, see the Director of Advising Services’ assistant.

For more information, refer to www.mcgill.ca/science/sousa.

4.5 Degree Admission Requirements

For information about admission requirements to the B.A. & Sc., refer to the Undergraduate Admissions Guide, found at www.mcgill.ca/applying.

For information about inter-faculty or inter-degree transfers, refer to University Regulations and Information > Inter-Faculty Transfer, as well as to the relevant information posted on the Science Office for Undergraduate Student Advising (SOUSA) website at www.mcgill.ca/science/sousa/general.
4.6 Degree Requirements

Each student pursuing a B.A. & Sc. must be aware of the regulations as stated in this section of this publication and on the McGill and Science Office for Undergraduate Student Advising (SOUSA) websites.

While departmental and Faculty advisers and staff are always available to give advice and guidance, the ultimate responsibility for completeness and correctness of course selection and registration, for compliance with, and completion of, program and degree requirements, and for the observance of regulations and deadlines rests with you. It is your responsibility to seek guidance from the SOUSA Office if in any doubt; misunderstanding or misapprehension will not be accepted as cause for dispensation from any regulation, deadline, program, or degree requirement.

To be eligible for a B.A. & Sc., you must fulfil all Faculty degree and program requirements as indicated below:

section 4.6.1: Minimum Credit Requirement
section 4.6.2: Residency Requirement
University Regulations and Information > Grading and Grade Point Averages (GPA)
section 4.6.3: Time and Credit Limit for Completion of the Degree
section 4.6.6: Course Requirements

4.6.1 Minimum Credit Requirement

You must complete the minimum credit requirement for the degree as specified in your letter of admission.

Students are normally admitted to a four-year degree requiring the completion of 120 credits, but advanced standing of up to 30 credits may be granted if you obtain satisfactory results in the Diploma of Collegial Studies, International Baccalaureate, French Baccalaureate, Advanced Levels, and Advanced Placement tests.

If you are readmitted after interrupting your studies for a period of five consecutive years or more, you may be required to complete a minimum of 60 credits and satisfy the requirements of a program. In this case, a new GPA will be calculated. The Director of Advising Services, Science, in consultation with the appropriate department, may approve a lower minimum for students who had completed 60 credits or more before interrupting their studies.

If you are readmitted after a period of absence, you are normally subject to the program and degree requirements in effect at the time of readmission.

4.6.2 Residency Requirement

To obtain a B.A. & Sc., you must satisfy the following residency requirements: a minimum of 60 credits of courses used to satisfy the B.A. & Sc. requirements must be taken and passed at McGill, exclusive of any courses completed as part of the math and science requirements of the B.A. & Sc. Freshman Program. At least two-thirds of all departmental program requirements (Multi-track, Honours, Interfaculty) must normally be completed at McGill, not including courses completed in a prior McGill degree. Exceptionally, students in major concentrations or interfaculty or honours programs who pursue an approved Study Away or Exchange program may, with prior approval from both their department and the Director of Advising Services, Faculty of Science, be exempted from the two-thirds rule. In addition, some departments may require that their students complete specific components of their program at McGill.

4.6.3 Time and Credit Limit for Completion of the Degree

If you need 96 or fewer credits to complete your degree requirements, you are expected to complete your degree in no more than eight terms after your initial registration. If you are a student in the Freshman program, you become subject to these regulations one year after your initial registration. If you need or want to exceed this time limit, you must receive permission from the Director of Advising Services, Science, to continue your studies.

If you are registered in the B.A. & Sc., you are expected to complete the requirements of your program and your degree within 120 credits. You will receive credit for all courses (subject to degree regulations) taken up to and including the semester in which you obtain 120 credits. If you want to remain at McGill beyond that semester, you must also seek permission of the Director of Advising Services, Science. Permission for exceeding the time and/or credit limits will normally be granted only for valid academic reasons, such as a change of program (subject to departmental approval) and part-time status. If permission is granted, you will receive credit only for required and complementary courses necessary to complete program requirements.

4.6.4 Bachelor of Arts and Science (B.A. & Sc.) - Freshman Program (30 credits)

Students who need to complete 97-120 credits to fulfill their degree requirements are admitted to the Freshman Program. Students with specific career goals should consult an academic adviser about their choice of program within the B.A. & Sc. However, students intending to pursue further studies following the B.A. & Sc. should refer to the admissions requirements of particular programs for the appropriate prerequisite courses.

In particular, students should note the following:

- The minimum freshman science requirements in the B.A. & Sc. may not satisfy the introductory science requirements of all medical/dental schools.
- The Major Concentration in Psychology may not provide a sufficiently focused background for admission to many graduate programs in Psychology.
- The Major Concentration Chemistry is not certified by the Ordre des Chimistes du Québec. Students interested in pursuing a career in Chemistry in Quebec are advised to take an appropriate B.Sc. program in Chemistry.

Foundational Courses
The Freshman Program requirements include foundational courses in both Science and Arts which must be selected as follows:

MATH
At least two mathematics courses:
One of a first Calculus:
- MATH 139 (4) Calculus 1 with Precalculus
- MATH 140 (3) Calculus 1
- MATH 150 (4) Calculus A

One of a second Calculus:
- MATH 141 (4) Calculus 2
- MATH 151 (4) Calculus B

A Linear Algebra course:
- MATH 133 (3) Linear Algebra and Geometry

SCIENCE
At least three foundational science courses:
One or more of Biology or Chemistry:
* Note: CHEM 120 is not open to students who have taken CHEM 115.
- BIOL 111 (3) Principles: Organismal Biology
- BIOL 112 (3) Cell and Molecular Biology
- CHEM 120* (4) General Chemistry 2

One of General Chemistry:
- CHEM 110 (4) General Chemistry 1
- CHEM 115 (4) Accelerated General Chemistry: Giants in Science

One of Mechanics:
- PHYS 101 (4) Introductory Physics - Mechanics
- PHYS 131 (4) Mechanics and Waves

One of Electromagnetism:
Note: PHYS 101 is a prerequisite for PHYS 102; and PHYS 131 is a prerequisite for PHYS 142.
- PHYS 102 (4) Introductory Physics - Electromagnetism
- PHYS 142 (4) Electromagnetism and Optics

ARTS
At least three Arts courses (or 9 credits) to be chosen in two of the following three categories: Humanities, Languages and Social Sciences.
A maximum of two courses (or 6 credits) may be chosen from one category, and no more than two courses (or 6 credits) can be taken in any one department.
Note: No course may fulfill the requirements for more than one program, including the B.A. & Sc. Freshman Program.

**Humanities (Literature and Civilization):**
Courses selected from the following subjects:
- Art History and Communications Studies (ARTH and COMS)
- Classics (CLAS)
- East Asian Studies (EAST)
- English (ENGL)
- French Language and Literature (FREN)
- German Studies (GERM)
- Hispanic Studies (HISP)
- Islamic Studies (ISLA)
- Italian studies (ITAL)
- Jewish Studies (JWST)
- Philosophy (PHIL)
- Religious Studies (RELG)
- Russian Studies (RUSS)

**Languages:**
Courses may be taken in this category to improve language skills.
Languages include:
- Classics (Latin, Ancient Greek or Modern Greek) (CLAS)
- East Asian Studies (Chinese, Japanese, Korean) (EAST)
- English as a Second Language (CEAP, CESL)
- French as a Second Language (FRSL)
- French Language and Literature (FREN)
- German Studies (GERM)
- Hispanic Studies (Spanish) (HISP)
- Islamic Studies (Arabic, Persian, Turkish, Urdu) (ISLA)
- Italian (ITAL)
- Jewish Studies (Hebrew, Yiddish) (JWST)
- Russian and Slavic Studies (Polish, Russian, Armenian, Czech) (RUSS)

**Social Sciences:**
Courses selected from the following subjects:
- Anthropology (ANTH)
- Economics (ECON)
- History (HIST)
- Linguistics (LING)
- Political Science (POLI)
- Sociology (SOCI)

**Advanced Standing/Transfer Credits**
Students who have completed the Diploma of Collegial Studies, Advanced Placement exams, Advanced Levels, the International Baccalaureate, the French Baccalaureate, or McGill placement examinations may receive exemption and/or credit for all or part of the Mathematics and foundational science courses as well as exemption from all or part of the Arts courses requirement of the Freshman Program. Similarly, students who have completed courses at other universities or colleges may receive exemptions and/or credits.

Advanced Placement Examination results with a score of 4 or 5 must be declared by the student at the time of initial registration at the University.
For more information about advanced standing, please consult: http://www.mcgill.ca/students/transfercredit/. Students must carefully select their mathematics and science Freshman courses so that they have all the required prerequisites for their intended departmental programs.

4.6.5 Departmental Programs

If you are pursuing a B.A. & Sc., other than those registered in the Freshman Program, you are required to have an approved program (Multi-track, Honours, Joint Honours, Interfaculty), and to select your courses in each term with a view to timely completion of your degree and program requirements. You must complete one of the program streams described below.

Previously the degree included a required integrative course (BASC 201; 3 credits). However, as of January 2011 this is no longer the case, and the course is currently under review. Students must still select a complementary integrative course (3 credits) within or outside a student's programs selected from the list of complementary Integrative Courses (see section 4.10.6: Integrative Courses), plus electives (10-15 credits)

4.6.5.1 Multi-Track System

To recognize the diversity of student backgrounds and interests and the multiple routes to understanding provided by a modern university, the Faculties of Arts and of Science offer a 90-credit multi-track system that includes a major concentration in one faculty complemented by either a major concentration or two minors/minor concentrations in the other faculty and that may be completed in one of the following ways:

**Options**

- Arts Major Concentration (36 credits) + Science Major Concentration (36-38 credits) (see section 4.10: Overview of Programs Offered for a list of programs open to students in the B.A. & Sc.)
- Major Concentration in Arts or Science (36-38 credits) + two minors/minor concentrations in the other faculty (2 x 18 credits = 36 credits.)

**Regulations**

- Programs offered by Computer Science, Mathematics and Statistics, and Psychology are considered Science programs for the purpose of the B.A. & Sc.
- Within both options, all concentrations must be in different academic units. Thus, you may take a Geography program either in Arts or in Science, but not in both.
- Students will include within the 36 or 18 credits of their major concentrations or minors or minor concentrations any university-level (200- or above) prerequisites to required courses within their programs.
- No course may fulfill the requirements for more than one program.

**Definitions**

- **Units**: academic departments or administrative equivalents.
- **Programs**: lists of required and complementary courses (including university-level prerequisites for required courses) prepared and maintained by units.
- **Major Concentration**: a program of 36-38 credits taken from a unit's course offerings.
- **Minor Concentration**: a program of 18 credits taken from a unit's course offerings. Expandable minor concentrations are those that can, on the completion of 18 additional approved credits, be expanded into a major concentration within the appropriate unit.

4.6.5.2 Honours Program

Honours programs demand a high degree of specialization, and require you to satisfy specific departmental and Faculty Honours requirements while maintaining good academic standing. They are designed to prepare you for graduate study. Students in the B.A. & Sc. who complete an approved Honours program must also complete an approved minor concentration or a minor in the Faculties of Arts or of Science. You must complete at least 30 credits in the Faculty of Arts and at least 30 in the Faculty of Science as part of your Honours program and your Minor concentration or Minor program. See section 4.10.3: Honours Programs for a list of available programs.

To choose the Honours option, you must meet the GPA/CGPA requirements set out in University Regulations and Information > Graduation Honours: Honours and First-Class Honours.

4.6.5.3 Joint Honours Program

If you want to study at the Honours level in two disciplines, you can combine a Joint Honours program component from an Arts discipline with one from a Science discipline; see section 4.10.4: Joint Honours Programs for a list of available programs. Each Joint Honours component consists of a maximum of 36-38 required and complementary credits (not including program prerequisites). In cases where a minimum of 24 credits are in courses normally restricted to Honours students, the total of required and complementary credits may be as few as 30.

To choose the Joint Honours option, you must meet the GPA/CGPA requirements set out in University Regulations and Information > Graduation Honours: Honours and First-Class Honours.
4.6.5.4 Interfaculty Program

An Interfaculty program is an approved selection of courses consisting of at least 30 credits in the Faculty of Arts or at least 30 credits in the Faculty of Science as part of your Interfaculty program and your Minor concentration or Minor program.

4.6.6 Course Requirements

All required and complementary courses used to fulfill program requirements, including the Freshman Program, must be completed with a grade of C or better. If you fail to obtain a satisfactory grade in a required course, you must either pass the supplemental examination in the course or do additional work for a supplemental grade, if these options are available, or repeat the course. Course substitution will be allowed only in special cases; students should consult their academic adviser.

Normally, you are permitted to repeat a failed course only once. Failure is considered to be a grade of less than C or the administrative failures of J and KF. If a required course is failed a second time, you must appeal to the Director of Advising Services, Science, for permission to take the course a third time. If permission is denied by the Director of Advising Services and/or by the Committee on Student Standing of the Faculty of Science, on appeal, you must withdraw from the program. If the failed course is a complementary course required by the program, you may choose to replace it with another appropriate complementary course. If you choose to substitute another complementary course for a complementary course in which a D was received, credit for the first course will still be given, but as an elective. If you repeat a required course in which a D was received, credit will be given only once.

Full details of the course requirements for all programs as well as the locations of departmental advisory offices, program directors, and telephone numbers for further information are available as follows:

For a list of all programs available to B.A. & Sc. students, see section 4.10: Overview of Programs Offered.

For a list of complementary integrative courses, see section 4.10.6: Integrative Courses.

4.6.6.1 Course Overlap

You will not receive additional credit toward your degree for any course for which you have already received credit at McGill, CEGEP, at another university, or as a result of Advanced Placement, Advanced Level, International Baccalaureate, or French Baccalaureate exams. It is your responsibility to consult the Science Office for Undergraduate Student Advising (Sousa) or the department offering the course as to whether or not credit can be obtained and to be aware of exclusion clauses specified in the course description in this publication.

Please refer to the following website for specific information about advanced standing credits and McGill course exemptions:

www.mcgill.ca/students/transfercredit.

Sometimes two different departments offer the same course. Such courses are called "double-prefix" courses. When such courses are offered simultaneously, you should take the course offered by the department in which you are obtaining your degree. For example, in the case of double-prefix courses CHEM XYZ and PHYS XYZ, Chemistry students take CHEM XYZ and Physics students take PHYS XYZ. If different departments offer a double-prefix course in alternate years, you may take whichever course best fits your schedule.

Credit for computer science and statistics courses will be given with the stipulations specified under Faculty of Science > Course Overlap.

4.6.6.2 Courses Outside the Faculties of Arts and of Science

The following regulations apply to students in the B.A. & Sc. who want to take courses outside the Faculties of Arts and of Science:

- Regardless of your minimum credit requirement towards your B.A. & Sc., you are allowed a maximum of 12 credits in ELECTIVE and/or COMPLEMENTARY courses taken in faculties other than the Faculties of Arts and of Science.
- Students in certain designated programs that include a number of REQUIRED and COMPLEMENTARY courses in other faculties are permitted a maximum of 30 credits outside the Faculties of Arts and of Science. These programs are the Interfaculty and Honours programs in Environment, the Minor concentration in Environment, the Interfaculty program in Sustainability, Science and Society, and the Major concentration in Geography (Urban Systems).
- Any courses taught at McGill University may be used toward the maximum allowed, except for courses in Continuing Education, for which you receive credits only in Continuing Education. Courses taught by the McGill Writing Centre are excluded from this rule and can count for credit in your degree (see the Sousa website for a list of approved courses: www.mcgill.ca/science/student/continuingstudents/basc/conted).
- For the purpose of this policy, courses taught in other faculties and specifically listed under the Faculty of Arts or Faculty of Science section of this publication are considered as courses taught in the Faculties of Arts and of Science.
- The maximum number of credits allowed will be strictly enforced.

4.6.6.3 Distance Education Courses

- A maximum of 6 credits of courses taught through distance education may be used as electives toward the B.A. & Sc. degree at McGill.
- Courses taught through distance education from institutions other than McGill will be approved as transfer credits under the following conditions:
  - the course is given by a government-accredited, degree-granting institution acceptable to McGill;
  - the course counts for credit toward degrees granted at the institution giving the course;
• prior approval for the course is obtained from the Science Office for Undergraduate Student Advising (SOUSA).

• The combined total of regular course credits and distance education course credits may not exceed the permitted maximum number of credits per term according to the regulations for the B.A. & Sc. (see University Regulations and Information > Course Load).

• Courses taught through distance education may not be used to complete program requirements, except on an individual basis when serious, documented circumstances warrant it. In such cases, prior approval must be obtained from your program adviser and the Director of Advising Services, Science.

4.6.6.4 Courses in English as a Second Language (ESL)

ESL courses are only open to students whose primary language is not English and who have studied for fewer than five years in English-language secondary institutions. As a student in the B.A. & Sc., you may take a maximum of 12 credits, including academic writing courses for non-anglophones, from the list of ESL courses published at www.mcgill.ca/science/student/continuingstudents/basc/conted.

4.6.6.5 Registration for First-Year Seminars

Registration for First-Year Seminars is limited to students in their first year of study at McGill, i.e., newly admitted students in U0 or U1. These courses are designed to provide a closer interaction with professors and better working relations with peers than is available in large introductory courses. These seminars endeavour to teach the latest scholarly developments and expose participants to advanced research methods. Registration is on a first-come, first-served basis. The maximum number of students in any seminar is 25, although some are limited to even fewer than that.

You may take only one First-Year Seminar during your first year at McGill. If you register for more than one, you will be obliged to withdraw from all but one of them.

A list of First-Year Seminars is available in the Arts section (see Faculty of Arts > First-Year Seminar Courses) and the Science section (see Faculty of Science > Registration for First-Year Seminars) of this publication.

4.7 Advising

If you need 96 or fewer credits to complete your degree requirements, you must consult an academic adviser in your proposed department of study to obtain advice and approval of your course selection (please see Departmental Programs). To facilitate program planning, you must present your transcript(s) and letter of admission. If you have not fulfilled the B.A. & Sc. Freshman Program requirements, you should also seek advice from an adviser in the Science Office for Undergraduate Student Advising (SOUSA). For a detailed description of advising and registration procedures, you should refer to University Regulations and Information > Registration, to University Regulations and Information > Undergraduate Advising, and to the website for newly admitted undergraduate students at www.mcgill.ca/newstudents, as well as to the information posted on the SOUSA website at www.mcgill.ca/science/sousa, and the departmental websites.

If you need 97-120 credits to complete your degree requirements, you will normally be registered in a Freshman program until you complete your first year. You must consult an adviser in the Science Office for Undergraduate Student Advising (SOUSA) to obtain advice and approval of your course selection. For a detailed description of advising and registration procedures, you should refer to the website for newly admitted undergraduate students at www.mcgill.ca/newstudents, and to the information on the SOUSA website, www.mcgill.ca/science/sousa.

Advising for all returning students takes place in March for the upcoming academic year. For more information, you should refer to the SOUSA website, www.mcgill.ca/science/sousa.

4.7.1 Choosing a B.A. & Sc. Program

The B.A. & Sc. is intended for students with well-defined interdisciplinary interests. There are several options for the main program, all of which specify 75-80 of the 90 credits, leaving only 10-15 credits for electives. Since there are relatively few electives, students entering a program in the B.A. & Sc. degree should have a clear idea of their objectives, goals, and intended areas of study, so that they can plan their curriculum carefully.

It should be noted that there also exists considerable flexibility within the B.A. (Faculty of Arts) and B.Sc. (Faculty of Science) programs. If you are more interested in Arts, but would like to study some Science, you can do so within the B.A. degree. Similarly, if you are more interested in Science, but would like to study some Arts, you can do so within the B.Sc. degree. For example, B.Sc. students may complete minor concentrations in Arts and vice versa.

There are four ways to complete programs in the B.A. & Sc. degree:

**Multi-track System**

The multi-track system is intended for students who want a program that includes significant components from both Arts and from Science.

You complete 36 credits of Arts, 36-38 credits of Science, and 3 credits of integrative courses. You can either combine an Arts major concentration with a Science major concentration (36-38 credits) or you can select a major concentration from one faculty and two 18-credit minor concentrations from the other. Additional guidelines for the multi-track system can be found in section 4.6.5: Departmental Programs. You will find the program descriptions for the major and minor concentrations in Science which are unique to the B.A. & Sc. within this section of this publication.

Descriptions of programs offered in Arts are located under the Faculty of Arts section of this publication.
Interfaculty Programs

Interfaculty programs are interdisciplinary in nature. There are currently three such programs: Environment, Cognitive Science as well as Sustainability, Science and Society. In these programs, you complete 54 credits of the Interfaculty program, a minor of 18 credits, and 3 credits of integrative courses. You must complete at least 30 credits in the Faculty of Arts and at least 30 credits in the Faculty of Science as part of your interfaculty program and your minor concentration or program.

Environment

The growth of technology, globalization of economies, and rapid increases in population and per capita consumption have all had dramatic environmental impacts. The Faculty Program in Environment for the Bachelor of Arts and Science is designed to provide students with a broad “Liberal Arts/Science” training. In combination with careful mentoring, this program offers a great degree of flexibility, allowing students to develop the skills and knowledge base required to face the myriad of environmental problems that currently need to be addressed. Further information about Environment programs and academic advising can be found at www.mcgill.ca/env.

Cognitive Science

The Interfaculty program in Cognitive Science offered within the B.A. & Sc. degree is the only major program currently offered at McGill for students interested in this discipline. The requirements encourage you to choose courses in two of the five subject areas in Cognitive Science (Computer Science, Linguistics, Neuroscience, Philosophy, Psychology) as the focus of your program. In addition, if you are interested in research in this field, you may include up to 12 credits of research courses within your program. Further information can be found at www.mcgill.ca/cogsci.

Sustainability, Science and Society

Food security, access to clean water, poverty, climate change, biodiversity loss, sustainable energy production -- a long list of challenges face human societies in the 21st century. In the face of these multiple challenges, the grand imperative of the 21st century is Sustainable Well-being -- in other words, how can we provide for a world population that could stabilize at 9-10 billion, while also maintaining the Earth’s life support systems. Find out more about this interdisciplinary program on the website www.geog.mcgill.ca/SSS/index.html.

Joint Honours

The Joint Honours option is similar to the multi-track system except that you complete two joint honours components, one in Arts and one in Science. Currently, the choice of Science component is restricted to either Math or Psychology. However, there is a great range of choices for the Arts component.

To choose the Joint Honours option, you must meet the GPA/CGPA requirements set out in University Regulations and Information > Graduation Honours: Honours and First-Class Honours.

Honours

There are two B.A. & Sc. Honours programs. The Honours program in Environment is similar to the Interfaculty program in Environment but has additional GPA requirements and an additional 6-credit required research course. Likewise, the Honours program in Cognitive Science is similar to the Interfaculty program in Cognitive Science with additional GPA requirements and an additional 6-credit research course requirement. If you are completing an honours program, you must also complete a minor concentration or program, and 6 credits of integrative courses. You must complete at least 30 credits in the Faculty of Arts and at least 30 credits in the Faculty of Science as part of your honours program and your minor concentration or program.

To choose the Honours option, you must meet the GPA/CGPA requirements set out in University Regulations and Information > Graduation Honours: Honours and First-Class Honours.

4.7.2 Preparation for Graduate School

Any choice of undergraduate degree and program constrains options for graduate school. The B.A. & Sc. provides good preparation for graduate degrees in integrated disciplines such as Cognitive or Environmental Science as well as in the new Sustainability, Science and Society program. Depending on the Arts or Science specific program you want to enter in graduate school, the B.A. & Sc. may or may not be adequate preparation. If you intend to pursue an Arts or Science specific program at the graduate level, you should consult academic advisers in that discipline at McGill and at universities where you intend to apply in order to find out whether the B.A. & Sc. will prepare you adequately. If you are considering continuing on in a specific Science graduate program, you should examine the difference between the preparation provided by the 36-credit major concentrations in the B.A. & Sc. program versus the significantly more specialized major and honours programs offered in the B.Sc. programs.

4.8 Freshman Interest Groups

Freshman Interest Groups (FIGs) are groups of approximately 15 U0 students in the B.Sc. or B.A. & Sc., led by a professor in the Faculty of Science or Faculty of Medicine and an upper-year undergraduate student. They meet once every two weeks in the Fall semester to discuss a wide range of topics, such as science in the news, program choices, undergraduate research opportunities, or just aspects of life in Montreal. The purpose of a FIG is to ease the transition to McGill and Montreal and to provide you an opportunity to interact with a professor and with other U0 students in a small group. FIGs carry no credit and there is no charge. For more information and to see how to register refer to www.mcgill.ca/science/student/fig.
4.9 Examinations

You should see University Regulations and Resources > Examinations: General Information for information about final examinations and deferred examinations.

The exam schedules are posted on the McGill website, www.mcgill.ca/students/exams, normally one month after the start of classes for the tentative Examination Schedule, and two months after the start of classes for the final Examination Schedule.

Students are warned not to make travel arrangements to leave Montreal prior to the scheduled end of any examination period.

4.10 Overview of Programs Offered

- Major Concentrations; see section 4.10.1: Major Concentrations
- Interfaculty Programs; see section 4.10.2: Interfaculty Programs
- Honours Programs; see section 4.10.3: Honours Programs
- Joint Honours Programs; see section 4.10.4: Joint Honours Programs
- Minor Concentrations or Minors; see section 4.10.5: Minor Concentrations or Minors
- Integrative Courses; see section 4.10.6: Integrative Courses

4.10.1 Major Concentrations

4.10.1.1 Faculty of Arts

The Arts major concentrations available to B.A. & Sc. students are listed here and are described in detail under the Faculty of Arts section of this publication. Since the B.A. & Sc. degree requires a certain number of credits in the Arts and in the Sciences, there are special requirements for B.A. & Sc. students. To be counted as an Arts major concentration, the program must include at least 30 credits of Arts courses. Similarly, to be counted as a Science major concentration, the program must include at least 30 credits of Science courses.

For example, a student completing the 36-credit African Studies Major concentration in Arts must complete at least 30 of those credits in Arts courses and at most 6 credits in Science courses.

African Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration African Studies (36 credits)

Anthropology; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Anthropology (36 credits)

Art History; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Art History (36 credits)

Canadian Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Canadian Studies (36 credits)

Classics; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Classics (36 credits)

East Asian Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration East Asian Studies (36 credits)

Economics; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Economics (36 credits)

English – Cultural Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration English – Cultural Studies (36 credits)

English – Drama and Theatre; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration English – Drama and Theatre (36 credits)

English – Literature; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration English – Literature (36 credits)

Geography; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Geography (36 credits)

Geography (Urban Systems); see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Geography - Urban Systems (36 credits)

German Language and Literature; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration German Studies - Language and Literature (36 credits)

German Literature and Culture; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration German Studies - Literature and Culture (36 credits)

German Studies, Contemporary; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Contemporary German Studies (36 credits)

Hispanic Languages; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Hispanic Studies - Languages (36 credits)

Hispanic Literature and Culture; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Hispanic Studies - Literature and Culture (36 credits)

History; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration History (36 credits)
International Development Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration International Development Studies (36 credits)

Italian Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Italian Studies (36 credits)

Jewish Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Jewish Studies (36 credits)

Langue et littérature françaises – Études et pratiques littéraires; see Faculty of Arts > Bachelor of Arts (B.A.) - Concentration majeure langue et littérature françaises - Études et pratiques littéraires (36 crédits)

Langue et littérature françaises – Traduction; see Faculty of Arts > Bachelor of Arts (B.A.) - Concentration majeure langue et littérature françaises - Traduction (36 crédits)

Latin-American Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Latin-American Studies (36 credits)

Linguistics; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Linguistics (36 credits)

Middle East Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Middle East Studies (36 credits)

North American Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration North American Studies (36 credits)

Philosophy; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Philosophy (36 credits)

Philosophy and Western Religions; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Philosophy and Western Religions (36 credits)

Political Science; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Political Science (36 credits)

Quebec Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Quebec Studies / La concentration Majeur en Études sur le Québec (36 credits)

Russian; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Russian (36 credits)

Scriptures and Interpretations; see Faculty of Arts > Religious Studies (RELG) > Bachelor of Arts (B.A.) - Major Concentration Scriptures and Interpretations (36 credits)

Sociology; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Sociology (36 credits)

Women's Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Women's Studies (36 credits)

World Religions; see Faculty of Arts > Religious Studies (RELG) > Bachelor of Arts (B.A.) - Major Concentration World Religions (36 credits)

4.10.1.2 Faculty of Science

The Science major concentrations available to B.A. & Sc. students are listed here and are described in detail either below under the Bachelor of Arts & Science (AS) section or under the Faculty of Arts (A) section of this publication as indicated.

Biology – Cell/Molecular Option (AS); see Bachelor of Arts & Science > Bachelor of Arts and Science (B.A. & Sc.) - Major Concentration Biology – Cell/Molecular (36 credits)

Biology – Organismal Option (AS); see Bachelor of Arts & Science > Bachelor of Arts and Science (B.A. & Sc.) - Major Concentration Biology – Organismal (37 credits)

Chemistry (AS); see Bachelor of Arts & Science > Bachelor of Arts and Science (B.A. & Sc.) - Major Concentration Chemistry (36 credits)

Computer Science (A); see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration in Computer Science (36 credits)

Earth, Atmosphere and Ocean Sciences (AS); see Bachelor of Arts & Science > Bachelor of Arts and Science (B.A. & Sc.) - Major Concentration Earth, Atmosphere and Ocean Science (36 credits)

Geography – Physical Geography Option (AS); see Bachelor of Arts & Science > Bachelor of Arts and Science (B.A. & Sc.) - Major Concentration Geography – Physical Geography (36 credits)

Mathematics (A); see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Mathematics (36 credits)

Physics (AS); see Bachelor of Arts & Science > Bachelor of Arts and Science (B.A. & Sc.) - Major Concentration Physics (36 credits)

Psychology (A); see Faculty of Arts > Bachelor of Arts (B.A.) - Major Concentration Psychology (36 credits)

Software Engineering (AS); see Bachelor of Arts & Science > Bachelor of Arts and Science (B.A. & Sc.) - Major Concentration in Software Engineering (37 credits)

4.10.2 Interfaculty Programs

The Interfaculty programs available to B.A. & Sc. students are listed here and are described in detail either under the Bachelor of Arts & Science (AS) section or under the McGill School of Environment (E) section of this publication as indicated.
Cognitive Science (AS), section 4.11.5.3: Bachelor of Arts and Science (B.A. & Sc.) - Interfaculty Program Cognitive Science (54 credits)

Environment (E), see McGill School of Environment > section 7.10.1: Bachelor of Arts and Science (B.A. & Sc.) – Interfaculty Program Environment (54 credits)

Sustainability, Science and Society (AS), section 4.11.9.1: Bachelor of Arts and Science (B.A. & Sc.) – Interfaculty Program in Sustainability, Science and Society (54 credits)

4.10.3 Honours Programs

There are two Honours programs available to B.A. & Sc. students:

- The Honours Program in Environment is described in detail in this publication under McGill School of Environment > Honours Program in Environment.
- The Honours Program in Cognitive Science is described in detail in section 4.11.5: Cognitive Science.

Students interested in an Honours degree should also consider the Joint Honours programs; see section 4.10.4: Joint Honours Programs.

4.10.4 Joint Honours Programs

Joint Honours programs in the B.A. & Sc. are created by combining a Joint Honours program component from an Arts discipline with one from a Science discipline. Students must register for both Joint Honours program components. Joint Honours students should consult an adviser in each department to discuss their course selection and their interdisciplinary research project (if applicable).

4.10.4.1 Faculty of Arts

The Arts Joint Honours components available to B.A. & Sc. students are listed here and are described in detail under the Faculty of Arts section of this publication.

Anthropology; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Anthropology (36 credits)

Art History; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Art History (36 credits)

Canadian Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Canadian Studies (36 credits)

Classics; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Classics (36 credits)

East Asian Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component East Asian Studies (36 credits)

Economics; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Economics (30 credits)

English – Cultural Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component English – Cultural Studies (36 credits)

English – Drama and Theatre; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component English – Drama and Theatre (36 credits)

English – Literature; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component English – Literature (36 credits)

Geography; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Geography (36 credits)

German Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component German (36 credits)

Hispanic Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Hispanic Studies (36 credits)

History; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component History (36 credits)

International Development Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component International Development Studies (36 credits)

Italian Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Italian Studies (36 credits)

Jewish Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Jewish Studies (36 credits)

Langue et littérature françaises – Études et pratiques littéraires; see Faculty of Arts > Bachelor of Arts (B.A.) - Double Spécialisation en langue et littérature françaises - Études et pratiques littéraires (36 credits)

Langue et littérature françaises – Traduction; see Faculty of Arts > Bachelor of Arts (B.A.) - Double Spécialisation en langue et littérature françaises - Traduction (36 credits)

Linguistics; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Linguistics (36 credits)

Middle East Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Middle East Studies (36 credits)

Philosophy; see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Philosophy (36 credits)
Philosophy and Western Religions: see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Philosophy and Western Religions (36 credits)

Political Science: see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Political Science (36 credits)

Religious Studies - Asian Religions: see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Religious Studies - Asian Religions (36 credits)

Religious Studies - Western Religions: see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Religious Studies - Western Religions (36 credits)

Russian: see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Russian (36 credits)

Sociology: see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Sociology (36 credits)

Women's Studies: see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Women's Studies (36 credits)

4.10.4.2 Faculty of Science

There are currently only two Science Joint Honours components available to B.A. & Sc. students, which are listed here and are described in detail under the Faculty of Arts section of this publication.

Mathematics: see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Mathematics (36 credits)

Psychology: see Faculty of Arts > Bachelor of Arts (B.A.) - Joint Honours Component Psychology (36 credits)

4.10.5 Minor Concentrations or Minors

4.10.5.1 Faculty of Arts

The Arts minor concentrations available to B.A. & Sc. students are listed here and are described in detail under the Faculty of Arts section of this publication. Since the B.A. & Sc. degree requires a certain number of credits in the Arts and in the Sciences, there are special requirements for B.A. & Sc. students. To be counted as an Arts minor or minor concentration, the program must include at least 15 credits of Arts courses. Similarly, to be counted as a Science minor or minor concentration, the program must include at least 15 credits of Science courses.

For example, a student completing the 18-credit African Studies Minor Concentration in Arts must complete at least 15 of those credits in Arts courses and at most 3 credits in Science courses. As another example, a student completing a 24-credit Science Minor in Interdisciplinary Life Sciences must complete at least 15 credits in Science courses and at most 9 credits in Arts courses.

African Studies: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration African Studies (18 credits)

Anthropology: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Anthropology (18 credits)

Art History: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Art History (18 credits)

Canadian Ethnic and Racial Studies: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Canadian Ethnic and Racial Studies (18 credits)

Canadian Studies: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Canadian Studies (18 credits)

Catholic Studies: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Catholic Studies (18 credits)

Classics: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Classics (18 credits)

Communication Studies: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Communication Studies (18 credits)

Comparative Politics: see Faculty of Arts > Political Science (POLI) > Bachelor of Arts (B.A.) - Minor Concentration Comparative Politics (18 credits)

East Asian Language and Literature: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration East Asian Language and Literature (18 credits)

East Asian Cultural Studies: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration East Asian Cultural Studies (18 credits)

East Asian Studies, Supplementary: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Advanced East Asian Studies (18 credits)

Economics: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Economics (18 credits)

English – Cultural Studies: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration English – Cultural Studies (18 credits)

English – Drama and Theatre: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration English – Drama and Theatre (18 credits)

English – Literature: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration English – Literature (18 credits)

Geography: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Geography (18 credits)
Geography (Urban Systems); see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Geography (Urban Systems) (18 credits)

German Language; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration German Language (18 credits)

German Literature; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration German Literature (18 credits)

German Literature and Culture in Translation; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration German Literature and Culture in Translation (18 credits)

Hispanic Languages; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Hispanic Languages (18 credits)

Hispanic Literature and Culture; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Hispanic Literature and Culture (18 credits)

History; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration History (18 credits)

History and Philosophy of Science; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration History and Philosophy of Science (18 credits)

International Development Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration International Development Studies (18 credits)

International Relations; see Faculty of Arts > Political Science (POLI) > Bachelor of Arts (B.A.) - Minor Concentration International Relations (18 credits)

Islamic Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Islamic Studies (18 credits)

Italian Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Italian Studies (18 credits)

Jewish Law; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Jewish Law (18 credits)

Jewish Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Jewish Studies (18 credits)

Langue et littérature françaises – Critique littéraire; see Faculty of Arts > Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises – Critique littéraire (18 crédits)

Langue et littérature françaises – Études et pratiques littéraires; see Faculty of Arts > Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises – Études et pratiques littéraires (18 crédits)

Langue et littérature françaises – Langue française; see Faculty of Arts > Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises – Langue française (18 crédits)

Langue et littérature françaises – Langue française et traduction; see Faculty of Arts > Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises – Langue française et traduction (18 crédits)

Langue et littérature françaises – Traduction; see Faculty of Arts > Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises – Traduction (18 crédits)

Linguistics; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Linguistics (18 credits)

Middle East Languages; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Middle East Languages (18 credits)

Middle East Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Middle East Studies (18 credits)

North American Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration North American Studies (18 credits)

Philosophy; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Philosophy (18 credits)

Philosophy and Western Religions; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Philosophy and Western Religions (18 credits)

Political Economy; see Faculty of Arts > Political Science (POLI) > Bachelor of Arts (B.A.) - Minor Concentration Political Economy (18 credits)

Political Science; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Political Science (18 credits)

Political Science: Canada/Quebec; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Political Science Canada/Quebec (18 credits)

Political Theory; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Political Theory (18 credits)

Politics, Law and Society; see Faculty of Arts > Political Science (POLI) > Bachelor of Arts (B.A.) - Minor Concentration Politics, Law and Society (18 credits)

Quebec Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Quebec Studies / La concentration Mineur en Études sur le Québec (18 credits)

Russian; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Russian (18 credits)

Russian Culture; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Russian Culture (18 credits)

Scriptural Languages; see Faculty of Arts > Religious Studies (RELG) > Bachelor of Arts (B.A.) - Minor Concentration Scriptural Languages (18 credits)

Sexual Diversity Studies; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Sexual Diversity Studies (18 credits)

Social Studies of Medicine; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Social Studies of Medicine (18 credits)

Sociology; see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Sociology (18 credits)
South Asia: see Faculty of Arts > Political Science (POLI) > Bachelor of Arts (B.A.) - Minor Concentration South Asia (18 credits)

Women's Studies: see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Women's Studies (18 credits)

World Religions: see Faculty of Arts > Religious Studies (RELG) > Bachelor of Arts (B.A.) - Minor Concentration World Religions (18 credits)

4.10.5.2 Faculty of Science

The Science minors (M) or minor concentrations (MC) available to B.A. & Sc. students are listed here and are described in detail either under the Faculty of Science (S), Faculty of Arts (A), Bachelor of Arts & Science (AS), or McGill School of Environment (E) section of this publication as indicated.

Atmospheric Science (M-S); see Faculty of Science > Bachelor of Science (B.Sc.) - Minor Atmospheric Science (18 credits)

Biology – Cell/Molecular (MC-AS); see Bachelor of Arts & Science > Bachelor of Arts and Science (B.A. & Sc.) - Minor Concentration Biology - Cell/Molecular (19 credits)

Biology – Organismal (MC-AS); see Bachelor of Arts & Science > Bachelor of Arts and Science (B.A. & Sc.) - Minor Concentration Biology - Organismal (19 credits)

Chemistry (M-S); see Faculty of Science > Bachelor of Science (B.Sc.) - Minor Chemistry (18 credits)

Computer Science (MC-A); see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration in Computer Science (18 credits)

Environment (M-E); see McGill School of Environment > Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) - Minor Environment (18 credits)

Geographic Information Systems (M-S); see Faculty of Science > Bachelor of Science (B.Sc.) - Minor Geographic Information Systems (18 credits)

Geography (M-S); see Faculty of Science > Bachelor of Science (B.Sc.) - Minor Geography (18 credits)

Geology (M-S); see Faculty of Science > Bachelor of Science (B.Sc.) - Minor Geology (18 credits) (previously named Earth and Planetary Sciences)

Interdisciplinary Life Sciences (M-S); see Faculty of Science > Bachelor of Science (B.Sc.) - Minor Interdisciplinary Life Sciences (24 credits)

Mathematics (MC-A); see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Mathematics (18 credits)

Physics (M-S); see Faculty of Science > Bachelor of Science (B.Sc.) - Minor Physics (18 credits)

Psychology (MC-A); see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Psychology (18 credits)

Statistics (MC-A see Mathematics & Statistics); see Faculty of Arts > Bachelor of Arts (B.A.) - Minor Concentration Statistics (18 credits)

4.10.6 Integrative Courses

4.10.6.1 Complementary Integrative Courses

Students in the B.A. & Sc. are required to complete at least one integrative course (at least 3 credits), possibly within one of their programs, chosen from the following list:

ANTH 201 (3) Prehistoric Archaeology
ANTH 203 (3) Human Evolution
ANTH 208 (3) Evolutionary Anthropology
ANTH 227 (3) Medical Anthropology
ANTH 302 (3) New Horizons in Medical Anthropology
ANTH 311 (3) Primate Behaviour and Ecology
ANTH 312 (3) Zooarchaeology
ANTH 411 (3) Primate Studies & Conservation
ANTH 418 (3) Environment and Development
ANTH 423 (3) Mind, Brain and Psychopathology
ANTH 443 (3) Medical Anthropological Theory
ANTH 511 (3) Computational Approaches to Prehistory
BASC 201 (3) Arts & Science Integrative Topics
BASC 396 (3) Undergraduate Research Project
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<td>BIOL 307</td>
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<td>GEOG 200</td>
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<td>HIST 330</td>
<td>(3)</td>
<td>Science in the Medieval West</td>
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<tr>
<td>HIST 348</td>
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<td>China: Science-Medicine-Technology</td>
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<td>HIST 350</td>
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<td>Science and the Enlightenment</td>
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<td>PHIL 220</td>
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<tr>
<td>PHIL 441</td>
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</tr>
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</table>
As a substitute, students can fulfill the requirement for a complementary integrative course by conducting library or empirical research that integrates the components of their program as a 3- or 6-credit independent study course, thesis course, or research course, with approval of the Director of Advising Services, Science.

### 4.11 Academic Programs

The B.A. & Sc. is an interdisciplinary degree intended for students who want to pursue simultaneously a program offered by Arts and one offered by Science. The overall objective is to provide a broad, liberal education spanning substantive areas in the two faculties so that students can learn diverse content and varied methods of inquiry.

#### 4.11.1 Programs in Arts or in Science

All B.A. & Sc. Arts programs are described in detail under the Faculty of Arts section of this publication. B.A. & Sc. Science programs that are open to B.A. students (i.e., programs in Computer Science, Mathematics and Statistics, and Psychology as well as some in Geography) are described under the Faculty of Arts section. Science Minors that are open to B.A. & Sc. students are described under the Faculty of Science section. B.A. & Sc. Science programs that are open only to B.A. & Sc. students are described under Bachelor of Arts and Science.

For information about where each B.A. & Sc. program is listed, see section 4.10: Overview of Programs Offered.

#### 4.11.2 Biology (BIOL)

The Department of Biology, the discipline, and specific courses are described under the Faculty of Science section of this publication.

The minimum freshman science requirements in the B.A. & Sc. may not satisfy the introductory science requirements of all medical/dental schools. Please see your departmental adviser for more information.

##### 4.11.2.1 Bachelor of Arts and Science (B.A. & Sc.) - Minor Concentration Biology - Cell/Molecular (19 credits)

The Minor Concentration Biology - Cell/Molecular, is restricted to students in the B.A. & Sc. It is a sequence of courses designed to yield a broad introduction to cell/molecular biology.

**Advising Note:** Students interested in a Biology minor concentration must choose either the Cell/Molecular option or the Organismal option, but may not take both. Students interested in a more in-depth program in Biology should consider the Major concentration.

Students may complete this program with a minimum of 18 credits or a maximum of 19 credits depending if they are exempt from taking CHEM 212 and their choice of complementary courses.

**Required Courses** (13 credits)

* Required courses taken at CEGEP or elsewhere that are not credited toward the B.A. & Sc. must be replaced by approved complementary courses. Regardless of the substitution, students must take at least 18 credits in this program.

** Students who have already taken CHEM 212 or its equivalent will choose another appropriate complementary course, to be approved by the Adviser.

- BIOL 200 (3) Molecular Biology
- BIOL 201 (3) Cell Biology and Metabolism
- BIOL 202 (3) Basic Genetics
- CHEM 212** (4) Introductory Organic Chemistry 1

**Complementary Courses (6 credits)**

Any 6 credits of biology courses at the 300 level or higher approved by the Adviser.
4.11.2.2 Bachelor of Arts and Science (B.A. & Sc.) - Minor Concentration Biology - Organismal (19 credits)

The Minor Concentration Biology - Organismal is restricted to students in the B.A. & Sc. It is a sequence of courses designed to yield a broad introduction to organismal biology.

Advising Note: Students interested in a Biology minor concentration must choose either the Cell/Molecular option or the Organismal option, but may not take both. Students interested in a more in-depth program in Biology should consider the Major concentration.

Students may complete this program with a minimum of 18 credits or a maximum of 19 credits depending if they are exempt from taking CHEM 212 and their choice of complementary course.

Required Courses* (16 credits)

* Required courses taken at CEGEP or elsewhere that are not credited toward the B.A. & Sc. must be replaced by approved complementary courses. Regardless of the substitution, students must take at least 18 credits in this program.

** Students who have already taken CHEM 212 or its equivalent will choose another appropriate complementary course, to be approved by the adviser.

BIOL 200 (3) Molecular Biology
BIOL 201 (3) Cell Biology and Metabolism
BIOL 205 (3) Biology of Organisms
BIOL 215 (3) Introduction to Ecology and Evolution
CHEM 212** (4) Introductory Organic Chemistry 1

Complementary Course (3 credits)

Any 3-credit biology course at the 300 level or higher approved by the adviser.

4.11.2.3 Bachelor of Arts and Science (B.A. & Sc.) - Major Concentration Biology - Cell/Molecular (36 credits)

Revision, August 2011. Start of revision.

The Major Concentration Biology - Cell/Molecular is a planned sequence of courses designed to permit a degree of specialization in cell/molecular biology.

Advising Note: Freshman students should be aware that PHYS 101 and/or PHYS 102 are required for some of the courses in the major and minor concentrations in Biology.

Required Courses* (29 credits)

* Required courses taken at CEGEP or elsewhere that are not credited toward the B.A. & Sc. or B.Sc./B.Ed. must be replaced by 3-credit courses from the Complementary Courses list. Regardless of the substitution, students must take at least 36 credits in this program.

** Students who have already taken CHEM 212 or its equivalent will choose another appropriate complementary course, to be approved by the Adviser.

BIOL 200 (3) Molecular Biology
BIOL 201 (3) Cell Biology and Metabolism
BIOL 202 (3) Basic Genetics
BIOL 205 (3) Biology of Organisms
BIOL 215 (3) Introduction to Ecology and Evolution
BIOL 300 (3) Molecular Biology of the Gene
BIOL 301 (4) Cell and Molecular Laboratory
BIOL 303 (3) Developmental Biology
CHEM 212** (4) Introductory Organic Chemistry 1

Complementary Courses (7 credits)

at least 7 credits selected from:

BIOL 306 (3) Neural Basis of Behaviour
BIOL 313 (3) Eukaryotic Cell Biology
BIOL 314 (3) Molecular Biology of Oncogenes
The Major Concentration Biology - Organismal is a planned sequence of courses designed to permit a degree of specialization in organismal biology. Students may complete this program with a minimum of 36 credits or a maximum of 37 credits depending if they have already taken CHEM 212 or its equivalent, and on their choice of complementary courses.

Advising Note: Freshman students should be aware that PHYS 101 and/or PHYS 102 are required for some of the courses in the major and minor concentrations in Biology.

Required Courses* (28 credits)
* Required courses taken at CEGEP or elsewhere that are not credited toward the B.A. & Sc. or B.Sc./B.Ed. must be replaced by 3-credit courses from the Complementary Courses list. Regardless of the substitution, students must take at least 36 credits in this program.
** Students who have already taken CHEM 212 or its equivalent will choose another appropriate complementary course, to be approved by the Adviser.

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<tr>
<td>CHEM 212**</td>
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Complementary Courses (9 credits)
9 credits selected from:

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<td>BIOL 342</td>
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<td>BIOL 350</td>
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<td>Insect Biology and Control</td>
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<td>Vertebrate Evolution</td>
</tr>
<tr>
<td>BIOL 373</td>
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<td>Biometry</td>
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<td>BIOL 418</td>
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<td>BIOL 427</td>
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<td>Herpetology</td>
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</table>
or other appropriate course at the 300 level or higher with permission of the Adviser.

Revision, August 2011. End of revision.

4.11.3 Biomedical Sciences

4.11.3.1 Location

Program Adviser:
Ms. Sonia Viselli
Student Affairs Officer, Department of Physiology
McIntyre Medical Sciences Building, Room 1022
3655 Promenade Sir-William-Osler
Montreal, Quebec H3G 1Y6

Telephone: 514-398-3689
Email: sonia.viselli@mcgill.ca

4.11.3.2 About Biomedical Sciences

The Major Concentration in Biomedical Sciences has been retired. Students completing the program should refer to the Calendar (www.mcgill.ca/students/courses/calendars) at their time of entrance to the program for the program requirements and consult with their academic adviser.

4.11.4 Chemistry (CHEM)

The Department of Chemistry, the discipline, and specific courses are described under the Faculty of Science section of this publication.

The Major Concentration Chemistry is not certified by the Ordre des Chimistes du Québec. Students interested in pursuing a career in Chemistry in Quebec are advised to take an appropriate B.Sc. program in Chemistry. The minimum freshman science requirements in the B.A. & Sc. may not satisfy the introductory science requirements of all medical/dental schools (see section 4.6.4: Bachelor of Arts and Science (B.A. & Sc.) - Freshman Program (30 credits)).

4.11.4.1 Bachelor of Arts and Science (B.A. & Sc.) - Major Concentration Chemistry (36 credits)

The Major Concentration Chemistry is not certified by the Ordre des Chimistes du Québec. Students interested in pursuing a career in Chemistry in Quebec are advised to take an appropriate B.Sc. program in Chemistry.

The Major Concentration Chemistry, which is restricted to students in the B.A. & Sc. or B.Sc./B.Ed., is a planned sequence of courses designed to permit a degree of specialization in this discipline.

Required Courses* (18 credits)

* Required courses taken at CEGEP or elsewhere that are not credited toward the B.A. & Sc. or B.Sc./B.Ed. must be replaced by courses from the Complementary Course List equal to or exceeding their credit value. Regardless of the substitution, students must take at least 36 credits in this program.

CHEM 203 (3) Survey of Physical Chemistry
CHEM 212 (4) Introductory Organic Chemistry 1
CHEM 222 (4) Introductory Organic Chemistry 2
CHEM 253 (1) Introductory Physical Chemistry 1 Laboratory
CHEM 281 (3) Inorganic Chemistry 1
CHEM 287 (2) Introductory Analytical Chemistry
CHEM 297 (1) Introductory Analytical Chemistry Laboratory

Complementary Courses (18 credits)

18 credits selected from:
4.11.5 Cognitive Science

4.11.5.1 Location

Ian Gold
Director, Program in Cognitive Science
3465 Peel Street, Room 401
Montreal, Quebec H3A 1W7

Interdisciplinary Programs Adviser
Ryan Bouma, Interim Adviser
Email: ryan.bouma@mcgill.ca
Telephone: 514-398-7330

Website: [www.mcgill.ca/cogsci](http://www.mcgill.ca/cogsci)

4.11.5.2 About Cognitive Science

Cognitive Science is the multidisciplinary study of cognition in humans and machines. The goal is to understand the principles of intelligence and thought with the hope that this will lead to a better understanding of the mind and of learning, and to the development of intelligent devices that constructively extend human abilities.

An Interfaculty Program in Cognitive Science (54 credits) is offered by the following departments:

- Computer Science (COMP) (Science)
- Linguistics (LING) (Arts)
- Philosophy (PHIL) (Arts)
- Psychology (PSYC) (Science)

**Cognitive Science Committee Members:**

Brendan Gillon (*Linguistics*)
Stephen McAdams (*Music*)
Doina Precup (*Computer Science*)
David Ragsdale (*Neuroscience*)
Debra Titone (*Psychology*)

Please note: New students are required to attend an information session held at the end of August. Please consult the cognitive science website in early August for the date and location.
4.11.5.3 Bachelor of Arts and Science (B.A. & Sc.) - Interfaculty Program Cognitive Science (54 credits)

The Interfaculty Program Cognitive Science, which is restricted to students in the B.A. & Sc., is a planned sequence of courses designed to permit students to focus on at least two relevant areas of study.

Note: B.A. & Sc. students who take interfaculty programs must take at least 30 credits in Arts and 30 credits in Science across their interfaculty program and their minor or minor concentration.

**Required Course (3 credits)**

PSYC 532 (3) Cognitive Science

**Complementary Courses (51 credits)**

Credits are selected as follows:

3 credits from the following:

- COMP 230 (3) Logic and Computability
- MATH 318 (3) Mathematical Logic
- PHIL 210 (3) Introduction to Deductive Logic 1

18 credits from List A in one of the following five units: Computer Science, Linguistics, Neuroscience, Philosophy, or Psychology.

12 credits from List A in one of the four remaining units.

18 credits chosen from Lists A and/or B in Computer Science, Linguistics, Neuroscience, Philosophy, Psychology and/or Research Courses of which at least 12 credits must be at the 400 level or higher.

Note 1: Students are responsible for ensuring that they meet all pre- and corequisites for all their courses.

Note 2: With the permission of the Director of the Cognitive Science program, students may be able to substitute up to 6 credits in cognate departments, such as Anatomy and Cell Biology, Biology, Neurology, or Physiology. For further information, consult the Cognitive Science website: [http://www.mcgill.ca/cogsci](http://www.mcgill.ca/cogsci).

**Computer Science**

**List A:**

- COMP 202 (3) Introduction to Computing 1
- COMP 206 (3) Introduction to Software Systems
- COMP 250 (3) Introduction to Computer Science
- COMP 251 (3) Data Structures and Algorithms
- COMP 302 (3) Programming Languages and Paradigms
- COMP 424 (3) Artificial Intelligence
- COMP 527 (3) Logic and Computation
- MATH 240 (3) Discrete Structures 1

**List B:**

- COMP 280 (3) History and Philosophy of Computing
- COMP 330 (3) Theoretical Aspects: Computer Science
- COMP 360 (3) Algorithm Design Techniques
- COMP 400 (3) Technical Project and Report
- COMP 409 (3) Concurrent Programming
- COMP 417 (3) Introduction Robotics and Intelligent Systems
Database Systems (COMP 421) (3)
Introduction to Probabilistic Analysis of Algorithms (COMP 490) (3)
Probabilistic Reasoning and AI (COMP 526) (3)
Theory of Computation (COMP 531) (3)
Fundamentals of Computer Vision (COMP 558) (3)
Calculus 3 (MATH 222) (3)
Linear Algebra (MATH 223) (3)

**Linguistics**

**List A:**
- Introduction to Linguistics (LING 201) (3)
- Phonetics (LING 330) (3)
- Phonology 1 (LING 331) (3)
- Linguistic Aspects of Bilingualism (LING 350) (3)
- Language Acquisition 1 (LING 355) (3)
- Introduction to Semantics (LING 360) (3)
- Syntax 1 (LING 371) (3)
- Neuroscience of Language (LING 390) (3)
- Linguistic Theory and its Foundations (LING 419) (3)
- Acquisition of Phonology (LING 451) (3)
- Second Language Syntax (LING 455) (3)

**List B:**
- Topics at the Interfaces 1 (LING 417) (3)
- Topics at the Interfaces 2 (LING 418) (3)
- Morphology (LING 440) (3)
- Formal Methods in Linguistics (LING 461) (3)
- Phonology 2 (LING 531) (3)
- Language Acquisition 2 (LING 555) (3)
- Pragmatics (LING 565) (3)
- Syntax 2 (LING 571) (3)
- Language Acquisition and Breakdown (LING 590) (3)

**Philosophy**

**List A:**
- Neuroethics (NSCI 300) (3)
- Chomsky (PHIL 304) (3)
- Philosophy of Mind (PHIL 306) (3)
- Intermediate Logic (PHIL 310) (3)
- Philosophy of Science 1 (PHIL 341) (3)
- 17th Century Philosophy (PHIL 360) (3)
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**Psychology**

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Neuroscience

List A/B:
* Students select either PHGY 311 or BIOL 306, but not both.
** Students select either BIOL 514 or PSYC 514, but not both.
*** Students select either NSCI 200 or PHGY 209, but not both.

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<td>PHGY 556</td>
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<td>Topics in Systems Neuroscience</td>
</tr>
<tr>
<td>PSYC 211</td>
<td>3</td>
<td>Introductory Behavioural Neuroscience</td>
</tr>
<tr>
<td>PSYC 311</td>
<td>3</td>
<td>Human Cognition and the Brain</td>
</tr>
<tr>
<td>PSYC 317</td>
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<td>Genes and Behaviour</td>
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<td>3</td>
<td>Special Topics in Neuropsychology</td>
</tr>
<tr>
<td>PSYC 427</td>
<td>3</td>
<td>Sensorimotor Behaviour</td>
</tr>
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<td>PSYC 502</td>
<td>3</td>
<td>Psychoneuroendocrinology</td>
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<td>PSYC 514**</td>
<td>3</td>
<td>Neurobiology of Learning and Memory</td>
</tr>
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<td>PSYC 522</td>
<td>3</td>
<td>Neurochemistry and Behaviour</td>
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<td>PSYT 301</td>
<td>3</td>
<td>Issues in Drug Dependence</td>
</tr>
<tr>
<td>PSYT 500</td>
<td>3</td>
<td>Advances: Neurobiology of Mental Disorders</td>
</tr>
</tbody>
</table>

Research Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
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<tbody>
<tr>
<td>COGS 401</td>
<td>6</td>
<td>Research Cognitive Science 1</td>
</tr>
<tr>
<td>COGS 402</td>
<td>6</td>
<td>Research Cognitive Science 2</td>
</tr>
</tbody>
</table>

4.11.5.4 Bachelor of Arts and Science (B.A. & Sc.) - Honours Cognitive Science (60 credits)

The Honours Cognitive Science, which is restricted to students in the B.A. & Sc., is an extension of the Interfaculty program and offers students an opportunity to undertake a research project in close association with professors in their main Arts and Science focus areas. Prior to selecting the Honours program, students should meet with the Interdisciplinary Program Adviser and review the B.A. & Sc. academic requirements for Honours and First Class Honours, which can also be found under "University Regulations and Information", "Graduation" and "Graduation Honours".

McGill University, Undergraduate Programs, Courses and University Regulations, 2011-2012 (Published August 17, 2011)
To receive an Honours degree, students are required to achieve a minimum overall program GPA of 3.3 at graduation, and attain a grade of B+ (3.3) or better in COGS 444. Students must complete both the 60 credit Honours program, plus an approved minor concentration or a minor in the Faculties of Arts or of Science.

Note: B.A. & Sc. students who take interfaculty programs, including the Honours in Cognitive Science, must take at least 30 credits in Arts and 30 in Science across their interfaculty program and their minor or minor concentration.

Required Courses (9 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>COGS 444</td>
<td>6</td>
<td>Honours Research</td>
</tr>
<tr>
<td>PSYC 532</td>
<td>3</td>
<td>Cognitive Science</td>
</tr>
</tbody>
</table>

Complementary Courses (51 credits)

Credits are selected as follows:

3 credits, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 230</td>
<td>3</td>
<td>Logic and Computability</td>
</tr>
<tr>
<td>MATH 318</td>
<td>3</td>
<td>Mathematical Logic</td>
</tr>
<tr>
<td>PHIL 210</td>
<td>3</td>
<td>Introduction to Deductive Logic 1</td>
</tr>
</tbody>
</table>

18 credits from List A in one of Computer Science, Linguistics, Neuroscience, Philosophy, or Psychology.

12 credits from List A in one of the four remaining units.

18 credits chosen from Lists A and/or B in Computer Science, Linguistics, Neuroscience, Philosophy, Psychology and/or Research Courses of which at least 12 credits must be at the 400 level or higher.

Note 1: Students are responsible for ensuring that they meet all pre- and corequisites for all their courses.

Note 2: With the permission of the Director of the Cognitive Science program, students may be able to substitute courses in cognate departments, such as Anatomy and Cell Biology, Biology, Neurology, or Physiology. For further information, consult the Cognitive Science website: http://www.mcgill.ca/cogsci.

Computer Science

List A:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 206</td>
<td>3</td>
<td>Introduction to Software Systems</td>
</tr>
<tr>
<td>COMP 250</td>
<td>3</td>
<td>Introduction to Computer Science</td>
</tr>
<tr>
<td>COMP 251</td>
<td>3</td>
<td>Data Structures and Algorithms</td>
</tr>
<tr>
<td>COMP 302</td>
<td>3</td>
<td>Programming Languages and Paradigms</td>
</tr>
<tr>
<td>COMP 424</td>
<td>3</td>
<td>Artificial Intelligence</td>
</tr>
<tr>
<td>COMP 527</td>
<td>3</td>
<td>Logic and Computation</td>
</tr>
<tr>
<td>MATH 240</td>
<td>3</td>
<td>Discrete Structures 1</td>
</tr>
</tbody>
</table>

List B:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
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<tbody>
<tr>
<td>COMP 280</td>
<td>3</td>
<td>History and Philosophy of Computing</td>
</tr>
<tr>
<td>COMP 330</td>
<td>3</td>
<td>Theoretical Aspects: Computer Science</td>
</tr>
<tr>
<td>COMP 360</td>
<td>3</td>
<td>Algorithm Design Techniques</td>
</tr>
<tr>
<td>COMP 400</td>
<td>3</td>
<td>Technical Project and Report</td>
</tr>
<tr>
<td>COMP 409</td>
<td>3</td>
<td>Concurrent Programming</td>
</tr>
<tr>
<td>COMP 417</td>
<td>3</td>
<td>Introduction Robotics and Intelligent Systems</td>
</tr>
<tr>
<td>COMP 421</td>
<td>3</td>
<td>Database Systems</td>
</tr>
<tr>
<td>COMP 490</td>
<td>3</td>
<td>Introduction to Probabilistic Analysis of Algorithms</td>
</tr>
</tbody>
</table>
COMP 526 (3) Probabilistic Reasoning and AI
COMP 531 (3) Theory of Computation
COMP 558 (3) Fundamentals of Computer Vision
MATH 222 (3) Calculus 3
MATH 223 (3) Linear Algebra

Linguistics

List A:
LING 201 (3) Introduction to Linguistics
LING 330 (3) Phonetics
LING 331 (3) Phonology 1
LING 350 (3) Linguistic Aspects of Bilingualism
LING 355 (3) Language Acquisition 1
LING 360 (3) Introduction to Semantics
LING 371 (3) Syntax 1
LING 390 (3) Neuroscience of Language
LING 419 (3) Linguistic Theory and its Foundations
LING 451 (3) Acquisition of Phonology
LING 455 (3) Second Language Syntax

List B:
LING 417 (3) Topics at the Interfaces 1
LING 418 (3) Topics at the Interfaces 2
LING 440 (3) Morphology
LING 461 (3) Formal Methods in Linguistics
LING 531 (3) Phonology 2
LING 555 (3) Language Acquisition 2
LING 565 (3) Pragmatics
LING 571 (3) Syntax 2
LING 590 (3) Language Acquisition and Breakdown

Philosophy

List A:
NSCI 300 (3) Neuroethics
PHIL 304 (3) Chomsky
PHIL 306 (3) Philosophy of Mind
PHIL 310 (3) Intermediate Logic
PHIL 341 (3) Philosophy of Science 1
PHIL 360 (3) 17th Century Philosophy
PHIL 370 (3) Problems in Analytic Philosophy
PHIL 415 (3) Philosophy of Language
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHIL 419</td>
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<td>Epistemology</td>
</tr>
<tr>
<td>PHIL 441</td>
<td>3</td>
<td>Philosophy of Science 2</td>
</tr>
<tr>
<td>PHIL 506</td>
<td>3</td>
<td>Seminar: Philosophy of Mind</td>
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</table>

**List B:**

<table>
<thead>
<tr>
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<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
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<td>3</td>
<td>Advanced Topics in Logic 1</td>
</tr>
<tr>
<td>PHIL 411</td>
<td>3</td>
<td>Topics in Philosophy of Logic and Mathematics</td>
</tr>
<tr>
<td>PHIL 421</td>
<td>3</td>
<td>Metaphysics</td>
</tr>
<tr>
<td>PHIL 470</td>
<td>3</td>
<td>Topics in Contemporary Analytic Philosophy</td>
</tr>
<tr>
<td>PHIL 474</td>
<td>3</td>
<td>Phenomenology</td>
</tr>
<tr>
<td>PHIL 511</td>
<td>3</td>
<td>Seminar: Philosophy of Logic and Mathematics</td>
</tr>
</tbody>
</table>

**Psychology**

**List A/B:**

<table>
<thead>
<tr>
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<th>Credits</th>
<th>Course Title</th>
</tr>
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<tbody>
<tr>
<td>ANTH 440</td>
<td>3</td>
<td>Cognitive Anthropology</td>
</tr>
<tr>
<td>MUMT 250</td>
<td>3</td>
<td>Music Perception and Cognition</td>
</tr>
<tr>
<td>NSCI 201</td>
<td>3</td>
<td>Introduction to Neuroscience 2</td>
</tr>
<tr>
<td>PSYC 204</td>
<td>3</td>
<td>Introduction to Psychological Statistics</td>
</tr>
<tr>
<td>PSYC 212</td>
<td>3</td>
<td>Perception</td>
</tr>
<tr>
<td>PSYC 213</td>
<td>3</td>
<td>Cognition</td>
</tr>
<tr>
<td>PSYC 301</td>
<td>3</td>
<td>Animal Learning &amp; Theory</td>
</tr>
<tr>
<td>PSYC 304</td>
<td>3</td>
<td>Child Development</td>
</tr>
<tr>
<td>PSYC 305</td>
<td>3</td>
<td>Statistics for Experimental Design</td>
</tr>
<tr>
<td>PSYC 311</td>
<td>3</td>
<td>Human Cognition and the Brain</td>
</tr>
<tr>
<td>PSYC 315</td>
<td>3</td>
<td>Computational Psychology</td>
</tr>
<tr>
<td>PSYC 316</td>
<td>3</td>
<td>Psychology of Deafness</td>
</tr>
<tr>
<td>PSYC 318</td>
<td>3</td>
<td>Behavioural Neuroscience 2</td>
</tr>
<tr>
<td>PSYC 340</td>
<td>3</td>
<td>Psychology of Language</td>
</tr>
<tr>
<td>PSYC 341</td>
<td>3</td>
<td>The Psychology of Bilingualism</td>
</tr>
<tr>
<td>PSYC 352</td>
<td>3</td>
<td>Cognitive Psychology Laboratory</td>
</tr>
<tr>
<td>PSYC 353</td>
<td>3</td>
<td>Laboratory in Human Perception</td>
</tr>
<tr>
<td>PSYC 410</td>
<td>3</td>
<td>Special Topics in Neuropsychology</td>
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<td>PSYC 413</td>
<td>3</td>
<td>Cognitive Development</td>
</tr>
<tr>
<td>PSYC 470</td>
<td>3</td>
<td>Memory and Brain</td>
</tr>
<tr>
<td>PSYC 522</td>
<td>3</td>
<td>Neurochemistry and Behaviour</td>
</tr>
<tr>
<td>PSYC 529</td>
<td>3</td>
<td>Music Cognition</td>
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<tr>
<td>PSYC 537</td>
<td>3</td>
<td>Advanced Seminar in Psychology of Language</td>
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<tr>
<td>PSYC 545</td>
<td>3</td>
<td>Topics in Language Acquisition</td>
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<tr>
<td>PSYC 561</td>
<td>3</td>
<td>Methods: Developmental Psycholinguistics</td>
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</table>

**Neuroscience**

**List A/B:**
<table>
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<tr>
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<th>Title</th>
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<tbody>
<tr>
<td>ANAT 321</td>
<td>Circuitry of the Human Brain</td>
</tr>
<tr>
<td>BIOL 200</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 201</td>
<td>Cell Biology and Metabolism</td>
</tr>
<tr>
<td>BIOL 306*</td>
<td>Neural Basis of Behaviour</td>
</tr>
<tr>
<td>BIOL 514**</td>
<td>Neurobiology Learning and Memory</td>
</tr>
<tr>
<td>BIOL 530</td>
<td>Advances in Neuroethology</td>
</tr>
<tr>
<td>BIOL 588</td>
<td>Advances in Molecular/Cellular Neurobiology</td>
</tr>
<tr>
<td>NEUR 310</td>
<td>Cellular Neurobiology</td>
</tr>
<tr>
<td>NSCI 200***</td>
<td>Introduction to Neuroscience 1</td>
</tr>
<tr>
<td>NSCI 201</td>
<td>Introduction to Neuroscience 2</td>
</tr>
<tr>
<td>NSCI 300</td>
<td>Neuroethics</td>
</tr>
<tr>
<td>PHGY 209***</td>
<td>Mammalian Physiology 1</td>
</tr>
<tr>
<td>PHGY 311*</td>
<td>Channels, Synapses &amp; Hormones</td>
</tr>
<tr>
<td>PHGY 314</td>
<td>Integrative Neuroscience</td>
</tr>
<tr>
<td>PHGY 556</td>
<td>Topics in Systems Neuroscience</td>
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<tr>
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<td>Introductory Behavioural Neuroscience</td>
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<td>PSYC 522</td>
<td>Neurochemistry and Behaviour</td>
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<tr>
<td>PSYT 301</td>
<td>Issues in Drug Dependence</td>
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<tr>
<td>PSYT 500</td>
<td>Advances: Neurobiology of Mental Disorders</td>
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### Research Courses

<table>
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<th>Title</th>
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<tbody>
<tr>
<td>COGS 401</td>
<td>Research Cognitive Science 1</td>
</tr>
<tr>
<td>COGS 402</td>
<td>Research Cognitive Science 2</td>
</tr>
</tbody>
</table>

#### 4.11.6 Computer Science

The School of Computer Science and the discipline are described under Faculty of Science > Computer Science (COMP).

The following are considered Science programs in the B.A. & Sc.:

- Minor Concentration in Computer Science
- Major Concentration in Computer Science
- Major Concentration in Software Engineering

The requirements of the Software Engineering program are described under the Bachelor of Arts and Science section while the requirements of the Computer Science programs are described under Faculty of Arts > Computer Science (COMP).
4.11.6.1 Bachelor of Arts and Science (B.A. & Sc.) - Major Concentration Software Engineering (37 credits)

This Major concentration provides a program of study that covers the subject commonly known as "Software Engineering". This program may be used to satisfy part of the requirements for a B.A. & Sc. degree. This program does not lead to certification as a Professional Engineer.

Students may complete this program with a minimum of 36 credits or a maximum of 37 credits depending on their choice of complementary courses.

Required Courses (30 credits)

* Students who have sufficient knowledge in a programming language do not need to take COMP 202 and can replace it with additional computer science complementary course credits.

- COMP 202* (3) Introduction to Computing 1
- COMP 206 (3) Introduction to Software Systems
- COMP 250 (3) Introduction to Computer Science
- COMP 251 (3) Data Structures and Algorithms
- COMP 273 (3) Introduction to Computer Systems
- COMP 302 (3) Programming Languages and Paradigms
- COMP 303 (3) Software Development
- COMP 421 (3) Database Systems
- MATH 223 (3) Linear Algebra
- MATH 240 (3) Discrete Structures 1

Complementary Courses (7 credits)

6-7 credits from:

- COMP 322 (1) Introduction to C++
- COMP 361D1 (3) Software Engineering Project
- COMP 361D2 (3) Software Engineering Project
- COMP 529 (4) Software Architecture
- COMP 533 (3) Object-Oriented Software Development

or any computer science course at the 300 level or above, excluding COMP 364, COMP 396, and COMP 431.

4.11.7 Earth, Atmosphere and Ocean Sciences

The following departments jointly offer a B.A. & Sc. program:

- Atmospheric and Oceanic Sciences (ATOC)
- Earth and Planetary Sciences (EPSC)

The departments, the disciplines, and specific courses are described in their respective sections under Faculty of Science.

4.11.7.1 Bachelor of Arts and Science (B.A. & Sc.) - Major Concentration Earth, Atmosphere and Ocean Sciences (36 credits)

The Major Concentration Earth, Atmosphere and Ocean Sciences, which is restricted to students in the B.A. & Sc., is a sequence of courses designed to permit a degree of specialization in these disciplines.

Required Courses (18 credits)

- ATOC 214 (3) Introduction: Physics of the Atmosphere
- ATOC 215 (3) Oceans, Weather and Climate
- ATOC 309 (3) Weather Radars and Satellites
- ATOC 315 (3) Thermodynamics and Convection
Complementary Courses (18 credits)

A minimum of 18 credits, at least 6 of which must be at the 300 level or higher, distributed as follows:

3 credits from:
- EPSC 201 (3) Understanding Planet Earth
- EPSC 233 (3) Earth and Life History

9 credits from:
- EPSC 203 (3) Structural Geology
- EPSC 220 (3) Principles of Geochemistry
- EPSC 231 (3) Field School 1
- EPSC 320 (3) Elementary Earth Physics
- EPSC 331 (3) Field School 2
- EPSC 341 (3) Field School 3
- EPSC 425 (3) Sediments to Sequences
- EPSC 455 (3) Sedimentary Geology
- EPSC 542 (3) Chemical Oceanography
- EPSC 549 (3) Hydrogeology

6 credits from:
- ATOC 219 (3) Introduction to Atmospheric Chemistry
- ATOC 412 (3) Atmospheric Dynamics
- GEOG 308 (3) Principles of Remote Sensing

4.11.8 Environment

The requirements for the B.A. & Sc. Interfaculty Program and the Honours Program in Environment are described in detail under McGill School of Environment. See McGill School of Environment > Bachelor of Arts and Science (B.A. & Sc.) - Interfaculty Program in Environment or see McGill School of Environment > Honours Program in Environment.

4.11.9 Geography (GEOG)

The Department of Geography, the discipline, and specific courses are described under the Faculty of Science section of this publication.

Note: students may take a Geography program either in Arts or in Science, but not in both.

The following are considered Arts programs in the B.A. & Sc. and are described under the Faculty of Arts section of this publication:

- Major Concentration in Geography
- Major Concentration in Geography (Urban Systems)
- Minor Concentration in Geography
- Minor Concentration in Geography (Urban Systems)

The following are considered Science programs in the B.A. & Sc. (Major Concentration) and are described either under the Bachelor of Arts and Science section or under the Faculty of Science section (Minors) of this publication:
Major Concentration in Geography (Physical Geography)
Minor in Geographical Information Systems
Minor in Geography

4.11.9.1 Bachelor of Arts and Science (B.A. & Sc.) – Interfaculty Program in Sustainability, Science and Society (54 credits)

Revision, August 2011. Start of revision.

The grand challenge of the 21st century is Sustainable Well-being; that is, to improve human well-being while maintaining the Earth's life-support systems. This B.A. & Sc. program provides the inter-disciplinary and integrative knowledge and skills required to effectively understand and address this challenge in its multiple dimensions - scientific-technological, socio-economic, political-institutional, ethical, and human behavioural - and to chart a transition to sustainability. It is built upon three pillars: 1) Science and Technology, to provide an in-depth understanding of the underpinnings of the problems of concern along these dimensions; 2) Economics, Policy, and Governance, to understand how we can make the Sustainability transition; and 3) Ethics, Equity, and Justice, to discuss why we need change, and the issues of equity and justice associated with taking action. This program is a partnership between Geography and the MSE and will be administered through Geography.

Required Courses (27 credits)

27 credits selected as follows:

**Foundations of Sustainability**

9 credits selected from Foundations of Sustainability as follows:

- ENVR 201 (3) Society, Environment and Sustainability
- GEOG 360 (3) Analyzing Sustainability
- GEOG 460 (3) Research in Sustainability

**Biophysical, Societal, Cultural, Institutional, and Ethical**

18 credits from introduction to biophysical, societal, cultural, institutional, and ethical dimensions of sustainability.

- ENVR 200 (3) The Global Environment
- ENVR 202 (3) The Evolving Earth
- ENVR 203 (3) Knowledge, Ethics and Environment
- GEOG 203 (3) Environmental Systems
- GEOG 310 (3) Development and Livelihoods
- MGPO 440 (3) Strategies for Sustainability

**Complementary Courses (27 credits)**

27 credits selected as follows:

- 3 credits of Statistics
- 3 credits of System Modelling tools
- 3 credits of Economics
- 18 credits selected from 3 areas

**Statistics**

3 credits of Statistics from the following:

- AEMA 310 (3) Statistical Methods 1
- BIOL 373 (3) Biometry
- GEOG 202 (3) Statistics and Spatial Analysis
- PSYC 204 (3) Introduction to Psychological Statistics

**System Modelling**

3 credits of System Modelling tools from the following:
ESYS 301 (3) Earth System Modelling
GEOG 501 (3) Modelling Environmental Systems

Economics

3 credits of Economics from the following:

AGEC 333 (3) Resource Economics
ECON 225 (3) Economics of the Environment
ECON 326 (3) Ecological Economics

18 additional credits of complementary courses chosen from 3 areas listed below:
Students must choose at least two courses from each area, and in total complete at least 9 credits at the 300 level or higher.

AREA 1: Methods: Observation, Analysis, Modelling, and Management

AGRI 435 (3) Soil and Water Quality Management
ENVB 437 (3) Assessing Environmental Impact
ENVR 544 (3) Environmental Measurement and Modelling
ESYS 500 (3) Earth System Applications
GEOG 201 (3) Introductory Geo-Information Science
GEOG 302 (3) Environmental Management 1
GEOG 306 (3) Raster Geo-Information Science
GEOG 308 (3) Principles of Remote Sensing
GEOG 351 (3) Quantitative Methods
GEOG 404 (3) Environmental Management 2
GEOG 509 (3) Qualitative Methods
GEOG 523 (3) Global Ecosystems and Climate
URBP 506 (3) Environmental Policy and Planning

AREA 2: Society, Economics, Policy, Ethics, and Equity

Take at least one course from each subsection (2A and 2B) below:

2A: Society, Economics, and Policy

Note:
* Students select either AGEC 200 or ECON 208, but not both.
** Students may select either AGEC 201 or ECON 209, but not both.

AGEC 200* (3) Principles of Microeconomics
AGEC 201** (3) Principles of Macroeconomics
AGEC 430 (3) Agriculture, Food and Resource Policy
AGEC 442 (3) Economics of International Agricultural Development
ANTH 206 (3) Environment and Culture
ANTH 212 (3) Anthropology of Development
ANTH 339 (3) Ecological Anthropology
ECON 208* (3) Microeconomic Analysis and Applications
ECON 209** (3) Macroeconomic Analysis and Applications
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ECON 230</td>
<td>(6)</td>
<td>Microeconomic Theory</td>
</tr>
<tr>
<td>ECON 347</td>
<td>(3)</td>
<td>Economics of Climate Change</td>
</tr>
<tr>
<td>ECON 405</td>
<td>(3)</td>
<td>Natural Resource Economics</td>
</tr>
<tr>
<td>ENVR 519</td>
<td>(3)</td>
<td>Global Environmental Politics</td>
</tr>
<tr>
<td>GEOG 210</td>
<td>(3)</td>
<td>Global Places and Peoples</td>
</tr>
<tr>
<td>GEOG 216</td>
<td>(3)</td>
<td>Geography of the World Economy</td>
</tr>
<tr>
<td>GEOG 303</td>
<td>(3)</td>
<td>Health Geography</td>
</tr>
<tr>
<td>GEOG 316</td>
<td>(3)</td>
<td>Political Geography</td>
</tr>
<tr>
<td>GEOG 408</td>
<td>(3)</td>
<td>Geography of Development</td>
</tr>
<tr>
<td>GEOG 410</td>
<td>(3)</td>
<td>Geography of Underdevelopment: Current Problems</td>
</tr>
<tr>
<td>GEOG 508</td>
<td>(3)</td>
<td>Resources, People and Power</td>
</tr>
<tr>
<td>GEOG 514</td>
<td>(3)</td>
<td>Climate Change Vulnerability and Adaptation</td>
</tr>
<tr>
<td>HIST 292</td>
<td>(3)</td>
<td>History and the Environment</td>
</tr>
<tr>
<td>MGCR 360</td>
<td>(3)</td>
<td>Social Context of Business</td>
</tr>
<tr>
<td>MGPO 475</td>
<td>(3)</td>
<td>Strategies for Developing Countries</td>
</tr>
<tr>
<td>MGPO 567</td>
<td>(3)</td>
<td>Business in Society</td>
</tr>
<tr>
<td>NRSC 540</td>
<td>(3)</td>
<td>Socio-Cultural Issues in Water</td>
</tr>
<tr>
<td>URBP 530</td>
<td>(3)</td>
<td>Urban Environmental Planning</td>
</tr>
</tbody>
</table>

**2B: Ethics and Equity**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVR 400</td>
<td>(3)</td>
<td>Environmental Thought</td>
</tr>
<tr>
<td>GEOG 382</td>
<td>(3)</td>
<td>Principles Earth Citizenship</td>
</tr>
<tr>
<td>MGPO 450</td>
<td>(3)</td>
<td>Ethics in Management</td>
</tr>
<tr>
<td>RELG 270</td>
<td>(3)</td>
<td>Religious Ethics and the Environment</td>
</tr>
</tbody>
</table>

**AREA 3: Sustainability and Biophysical Processes**

Note:

* Students select either BREE 217 or GEOG 322, but not both.
** Students select either BIOL 540 or ENVR 540, but not both.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATOC 214</td>
<td>(3)</td>
<td>Introduction: Physics of the Atmosphere</td>
</tr>
<tr>
<td>ATOC 215</td>
<td>(3)</td>
<td>Oceans, Weather and Climate</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>(3)</td>
<td>Ecological Dynamics</td>
</tr>
<tr>
<td>BIOL 310</td>
<td>(3)</td>
<td>Biodiversity and Ecosystems</td>
</tr>
<tr>
<td>BIOL 540**</td>
<td>(3)</td>
<td>Ecology of Species Invasions</td>
</tr>
<tr>
<td>BREE 217*</td>
<td>(3)</td>
<td>Hydrology and Water Resources</td>
</tr>
<tr>
<td>ENVB 410</td>
<td>(3)</td>
<td>Ecosystem Ecology</td>
</tr>
<tr>
<td>ENVR 540**</td>
<td>(3)</td>
<td>Ecology of Species Invasions</td>
</tr>
<tr>
<td>ESYS 200</td>
<td>(3)</td>
<td>Earth System Processes</td>
</tr>
<tr>
<td>ESYS 300</td>
<td>(3)</td>
<td>Investigating the Earth System</td>
</tr>
<tr>
<td>GEOG 221</td>
<td>(3)</td>
<td>Environment and Health</td>
</tr>
<tr>
<td>GEOG 305</td>
<td>(3)</td>
<td>Soils and Environment</td>
</tr>
<tr>
<td>GEOG 322*</td>
<td>(3)</td>
<td>Environmental Hydrology</td>
</tr>
</tbody>
</table>
Students who wish to explore the following topics in more depth may select the courses listed below:

1) Climate Change: ESYS 200, ESYS 300, ESYS 500, GEOG 523, ATOC 214, ATOC 215
2) Land Resources, Food, Forests: AGEC 430, AGEC 442, AGRI 308, BIOL 310, ENVB 410, GEOG 523, GEOG 530
3) Water Resources: AGRI 435, NRSC 540, BREE 217, GEOG 372, GEOG 470, GEOG 530
4) Biodiversity: BIOL 308, BIOL 310, BIOL 540, ENVB 410, ENVR 540, GEOG 555
5) Human Health: GEOG 221, GEOG 303, GEOG 403
6) Development: GEOG 408, GEOG 410, ANTH 212

Revision, August 2011. End of revision.

4.11.9.2 Bachelor of Arts and Science (B.A. & Sc.) - Major Concentration Geography - Physical Geography (36 credits)

The Major Concentration Geography - Physical Geography, which is restricted to students in the B.A. & Sc., is a planned sequence of courses designed to permit a degree of specialization in this discipline.

### Required Courses (12 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 201</td>
<td>Introductory Geo-Information Science</td>
</tr>
<tr>
<td>GEOG 202</td>
<td>Statistics and Spatial Analysis</td>
</tr>
<tr>
<td>GEOG 203</td>
<td>Environmental Systems</td>
</tr>
<tr>
<td>GEOG 272</td>
<td>Earth’s Changing Surface</td>
</tr>
</tbody>
</table>

### Complementary Courses (24 credits)

Courses are selected as follows:

6 credits of analytical techniques are selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 306</td>
<td>Raster Geo-Information Science</td>
</tr>
<tr>
<td>GEOG 307</td>
<td>Socioeconomic Applications of GIS</td>
</tr>
<tr>
<td>GEOG 308</td>
<td>Principles of Remote Sensing</td>
</tr>
<tr>
<td>GEOG 351</td>
<td>Quantitative Methods</td>
</tr>
</tbody>
</table>

3 credits of field courses selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 495</td>
<td>Field Studies - Physical Geography</td>
</tr>
<tr>
<td>GEOG 496</td>
<td>Geographical Excursion</td>
</tr>
<tr>
<td>GEOG 497</td>
<td>Ecology of Coastal Waters</td>
</tr>
<tr>
<td>GEOG 499</td>
<td>Subarctic Field Studies</td>
</tr>
</tbody>
</table>

9-15 credits in systematic physical geography selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 305</td>
<td>Soils and Environment</td>
</tr>
<tr>
<td>Course Code</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
</tr>
<tr>
<td>GEOG 321</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 322</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 372</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 470</td>
<td>3</td>
</tr>
</tbody>
</table>

0-6 credits in integrative and advanced topics selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 302</td>
<td>3</td>
<td>Environmental Management I</td>
</tr>
<tr>
<td>GEOG 501</td>
<td>3</td>
<td>Modelling Environmental Systems</td>
</tr>
<tr>
<td>GEOG 505</td>
<td>3</td>
<td>Global Biogeochemistry</td>
</tr>
<tr>
<td>GEOG 506</td>
<td>3</td>
<td>Advanced Geographic Information Science</td>
</tr>
<tr>
<td>GEOG 536</td>
<td>3</td>
<td>Geocryology</td>
</tr>
<tr>
<td>GEOG 537</td>
<td>3</td>
<td>Advanced Fluvial Geomorphology</td>
</tr>
<tr>
<td>GEOG 550</td>
<td>3</td>
<td>Historical Ecology Techniques</td>
</tr>
<tr>
<td>GEOG 555</td>
<td>3</td>
<td>Ecological Restoration</td>
</tr>
</tbody>
</table>

4.11.10 Mathematics

The requirements for the B.A. & Sc. Major Concentration in Mathematics are described in detail under Faculty of Arts > Mathematics and Statistics (MATH).

4.11.11 Physics (PHYS)

The Department of Physics, the discipline, and specific courses are described under the Faculty of Science section of this publication.

4.11.11.1 Bachelor of Arts and Science (B.A. & Sc.) - Major Concentration Physics (36 credits)

The Major Concentration Physics, which is restricted to students in the B.A. & Sc. or B.Sc./B.Ed., is a planned sequence of courses designed to permit a degree of specialization in this discipline. This program is insufficient to prepare a student for professional or graduate work in physics; students interested in pursuing a career in physics are advised to take the appropriate B.Sc. program in physics.

Required Courses* (30 credits)

* Required courses taken at CEGEP or elsewhere that are not credited toward the B.A. & Sc. or B.Sc./B.Ed. must be replaced by courses from the Complementary Course List.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 223</td>
<td>3</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 314</td>
<td>3</td>
<td>Advanced Calculus</td>
</tr>
<tr>
<td>MATH 315</td>
<td>3</td>
<td>Ordinary Differential Equations</td>
</tr>
<tr>
<td>PHYS 230</td>
<td>3</td>
<td>Dynamics of Simple Systems</td>
</tr>
<tr>
<td>PHYS 232</td>
<td>3</td>
<td>Heat and Waves</td>
</tr>
<tr>
<td>PHYS 257</td>
<td>3</td>
<td>Experimental Methods 1</td>
</tr>
<tr>
<td>PHYS 333</td>
<td>3</td>
<td>Thermal and Statistical Physics</td>
</tr>
<tr>
<td>PHYS 340</td>
<td>3</td>
<td>Majors Electricity and Magnetism</td>
</tr>
<tr>
<td>PHYS 446</td>
<td>3</td>
<td>Majors Quantum Physics</td>
</tr>
</tbody>
</table>

Complementary Courses (6 credits)

6 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 214</td>
<td>3</td>
<td>Introductory Astrophysics</td>
</tr>
<tr>
<td>PHYS 224</td>
<td>3</td>
<td>Physics of Music</td>
</tr>
</tbody>
</table>
4.11.12 Psychology

The requirements for the B.A. & Sc. Major Concentration in Psychology, Joint Honours Component in Psychology and Minor Concentration in Psychology are described in detail under Faculty of Arts > Psychology (PSYC).

5 Faculty of Education

5.1 About the Faculty

The Faculty serves approximately 2,000 students enrolled in undergraduate, graduate, and professional development programs. The Faculty is organized into three departments and the School of Information Studies. In addition, the Faculty has a number of research and service centres, including several of an interdisciplinary nature.

Like other faculties of education in Quebec and Canada, the Faculty has had a traditional role in the initial training of teachers and leaders in education-allied occupations. It is also concerned with constructing knowledge through research and scholarship, and with providing professional development services to the wider educational community.

In recent years, a number of links have been established with counterparts in other countries for teaching, research, and development purposes. Current active projects, some of which involve students as well as staff, include those in Japan, Indonesia, South Africa, and Mexico.

5.2 History

The Faculty of Education traces its beginnings back to 1857, when the McGill Normal School was established at McGill by agreement between the University and the Government of Quebec. In 1907, it was renamed the School for Teachers and was moved to Sainte-Anne-de-Bellevue, where it became part of Macdonald College. At this time also, the Macdonald Chair of Education was endowed at McGill University and a Department of Education was created in the Faculty of Arts and Science for the purpose of preparing candidates for the High School Diploma. The first graduate program was inaugurated in 1930, and in 1953, the University established the B.Ed. degree. In 1955, the School for Teachers and the Department of Education were combined to become the Institute of Education within the Faculty of Arts and Science. To these was joined, in 1957, the McGill School of Physical Education (founded in 1912). The Institute was reconstituted as the Faculty of Education in 1965 and the work continued on both the McGill and Macdonald campuses. The St. Joseph Teachers College and the Faculty of Education were amalgamated in 1970 and relocated in a new building on the McGill campus. In 1996, the School of Information Studies became affiliated with the Faculty.

5.3 Faculty of Education Facilities

5.3.1 Education Library and Curriculum Resources Centre

The Education Library and Curriculum Resources Centre, located on the first floor of the Education Building, provides materials and services to support the teaching and research programs of the Faculty. The Library collection includes over 122,000 monograph volumes, 500 periodical titles, microforms, government publications, and access to a vast range of full-text electronic journals.

The Curriculum Resources Centre collection includes elementary and secondary school textbooks, teachers' resource guides, videos, DVDs, CDs, games, kits, puppets, big books, and equipment for viewing and listening. A Children's Literature Collection of fiction, non-fiction, poetry, folklore, and picture books is located on the left as you enter the Library.

Tours and instructional workshops are offered at the beginning of each term to individual students and to classes. These provide an introduction to library resources and information skills that will help in preparing course assignments and writing research papers. They cover topics such as searching the Library
Catalogue (MUSE), finding course materials on reserve, and locating articles and other materials via databases such as ERIC; PsychINFO; Education Full Text, and others. EndNote workshops will provide help on how to easily create footnotes and reference lists for term papers.

The Education Library provides computers for student use, tables, and carrels to connect laptops, wireless access, as well as photocopiers, printers, and scanners. You may select to work in the quiet study area of the E-Zone, prefer group study in the Curriculum Resources Centre or in one of the two group study rooms, or just relax on a lounge chair in an informal seating area.

Lending Services for laptops, digital and video cameras, digital voice recorders, and tripods are now handled by the Education Library. These services are available during regular Library operating hours, as indicated on the Library’s website at www.mcgill.ca/library/library-using/branches/education-library.

Visit the Education Library website to learn more about library loans, hours, reserve readings, and links to important education sites. We look forward to seeing you in the Library.

Head Librarian: Sara Holder
Telephone: 514-398-4689
Website: www.mcgill.ca/education-library

5.3.2 Education Undergraduate Society (EDUS)

The Society is the undergraduate students' voice of undergraduates within the Faculty and its primary purpose is to serve and to inform the students. It also attempts to unify students through sponsorship of activities such as career placement, student orientation, participation in teachers' conventions, library donations, and the organization of an Education Career Fair. Other activities include the assignment of lockers for students, selling merchandise in the Spirit Store, the coordination of the Graduation Ball, as well as fundraising and events throughout the academic year. Students are encouraged to participate and to make their opinions known. The Society Office is located in Room B179 of the Education Building.

Telephone: 514-398-7048
Fax: 514-398-2476
Email: president.edus@mail.mcgill.ca
Website: www.mcgilledus.ca

5.3.3 Computer Facilities

The Faculty has a large computer complex located in Room 328 of the Education Building. It houses a lab with Windows computers, a second lab with Apple Macintosh computers, and a smaller work area with additional computers. Colour and black-and-white laser printing and scanning facilities are available. Consultants are available for help. This facility is available for courses, workshops, and individual use by Education students and staff.

Closed Sundays, holidays, and during August.

<table>
<thead>
<tr>
<th>Hours for the Fall and Winter terms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday to Thursday</td>
</tr>
<tr>
<td>Friday</td>
</tr>
<tr>
<td>Saturday</td>
</tr>
</tbody>
</table>

Website: www.mcgill.ca/education/resources/ist

5.3.4 McGill Career Planning Service (CaPS)

Refer to University Regulations and Resources for further information on this service.

For Information, contact:

Career Adviser: Andrea Taylor
Telephone: 514-398-2484
Email: andrea.taylor@mcgill.ca
Website: www.mcgill.ca/edu-sao/careerplanningservices

5.3.5 McGill Journal of Education

The McGill Journal of Education is an open-access, online journal that is posted at least three times a year: Winter, Spring, and Fall. It includes work in English and French from local, national, and international sources. The Journal publishes peer-reviewed research articles, essays, reports from the field, and book reviews. It is concerned with major issues in education from a variety of perspectives, practical and theoretical, personal and collective. Its policy is to bring new ideas and research into a context open to teacher educators and scholars, as well as to parents, teachers, and administrators.

Editor: TBA
Assistant Editor: Dr. Annie Savard
5.3.6 A.S. Lamb Learning Centre

The A.S. Lamb Learning Centre, consisting of the Computer Laboratory, the multimedia unit, and the reading room, is located on the second floor of the Sir Arthur Currie Memorial Gymnasium. The computer lab houses 25 computers connected to the McGill network and is available for courses, workshops, and individual use by students and staff. Laser printing is also available at a cost. Access to the McGill wireless network is available for laptops equipped with a wireless card.

The multimedia unit features two iMac computers with "Final Cut" DV and HDV video editing software, one VHS & DVD recorder, and a Flatbed Duplex high-speed scanner. This facility is used for video editing, transfer of VHS, DV to DVD, and high-speed scanning.

LAN Tech.: Mr. Sanjeev Panigrahy
Location: McGill Sports Complex, Room 207A
475 Pine Avenue West
Website: www.mcgill.ca/edu-kpe/facilities/asllc

Hours
Monday to Friday 09:00 - 16:00

5.3.7 Evolution Education Research Centre (EERC)

Mission: “To advance the teaching and learning of biological evolution through research”. It opened its doors at McGill in 2001 with four McGill professors and four Harvard professors who have expertise in anthropology, biological evolution, educational psychology, geology, molecular biology, palaeontology, philosophy of science/education, and science education.

Director: Dr. Brian Alters
Manager: Jason Wiles
Office: Education Building, Room 355
Telephone: 514-398-5469

5.3.8 Office of Student Teaching (OST)

The Office of Student Teaching is responsible for the planning and implementation of field experiences and arranging with school boards and schools for the placement of student teachers in the Bachelor of Education programs. The Office coordinates student teaching among Departments within the Faculty, and develops partnerships with the education community. The Office offers training to colleagues in schools.

Office Hours
Monday to Friday 08:30 - 17:00

Director: Professor Fiona J. Benson
Office: Education Building, Room 431A
Telephone: 514-398-7046
Fax: 514-398-3179
Website: www.mcgill.ca/ost

5.3.9 Student Affairs Office (SAO)

The Student Affairs Office is responsible for student records and registration as well as general academic information and advice on undergraduate program and degree requirements, course change, withdrawal, supplemental and deferred exams, rereads, academic standing, inter-faculty transfer, readmission, study away, scholarships and awards, graduation, and teacher certification.

Special requests can be made, in writing, to Ronald Morris, Executive Director (Student Affairs).
5.4 Revisions – Faculty of Education

Integrated Studies in Education

section 5.10.6: Bachelor of Education (B.Ed.) – Secondary Mathematics (120 credits)

section 5.10.7: Bachelor of Education (B.Ed.) – Secondary Social Sciences – History and Citizenship, Ethics and Religious Culture (120 credits)

section 5.10.8: Bachelor of Education (B.Ed.) – Secondary Social Sciences – History and Citizenship, Geography (120 credits)

section 5.10.22: Bachelor of Education (B.Ed.) – Kindergarten and Elementary Jewish Studies (120 credits)

section 5.10.23: Bachelor of Education (B.Ed.) – Kindergarten and Elementary Pédagogie de l'Immersion Française (120 credits) new

5.5 About the Faculty of Education (Undergraduate)

5.5.1 Department of Integrated Studies in Education

The Department of Integrated Studies in Education offers undergraduate programs that are committed to the preparation of exceptional teachers for work in elementary and secondary schools. We have four-year Bachelor of Education programs for CEGEP graduates, and five-year programs for out-of-province students. In addition, we can accommodate students with completed or partly completed degrees in other disciplines.

- Bachelor of Education Kindergarten and Elementary Education
- Bachelor of Education Kindergarten and Elementary Education (Jewish Studies)
- Bachelor of Education Secondary Program
- Concurrent Bachelor of Science/Bachelor of Education (Secondary)
- Concurrent Bachelor of Music/Bachelor of Education in Music (Music Education)
- Bachelor of Education Teaching French as a Second Language – No admission for 2011-2012
- Bachelor of Education Teaching English as a Second Language

5.5.2 Department of Educational and Counselling Psychology

The Department of Educational and Counselling Psychology (ECP) is committed to the advancement of scientific knowledge through research and practice in education and psychology. ECP addresses cognition and development in typical and atypical populations across the lifespan. Broadly speaking, researchers examine issues pertaining to assessment and intervention; cognitive processes and developmental neuroscience; and the design and evaluation of learning environments and instructional practices.

The Department offers:

- Undergraduate Minor concentrations
- Teacher certification (online courses)

5.5.3 Department of Kinesiology and Physical Education

The mission of the Department of Kinesiology and Physical Education is to generate, advance, and disseminate knowledge about human health and physical activity, and to prepare professionals to engage in related employment.

- Bachelor of Education majoring in Physical and Health Education
- Bachelor of Science (Kinesiology) with Major General, Major Applied, and Honours
- Bachelor of Science students also have the opportunity to receive a Minor in Kinesiology.
**Overview of Faculty Programs**

The Faculty of Education offers three different kinds of programs.

**Undergraduate Programs:** The Faculty offers programs leading to the Bachelor of Education (B.Ed.) degree for those wishing to become teachers, and a B.Sc.(Kinesiology). Advanced Standing may be given to those already holding a university degree.

**Programs of Professional Development:** For qualified teachers wishing to enhance their knowledge and skills, the Faculty offers programs of professional development leading to specialized certificates and diplomas. Most courses that are required to complete these programs are offered in the evenings and in the summer.

**Graduate Programs:** The Faculty offers graduate programs for those already holding a university degree who wish to pursue advanced study and research leading to master’s and doctoral degrees in various fields of education and psychology, and library and information studies. A new Master’s of Arts in Teaching and Learning, which leads to teacher certification on the Secondary level is also offered, more information is available at [www.mcgill.ca/edu-dise/prospective/matl](http://www.mcgill.ca/edu-dise/prospective/matl).

Undergraduate programs of initial teacher education are described in this publication, programs of professional development are described in the most current School of Continuing Studies Programs, Courses and University Regulations publication, and graduate programs are described in the most current Graduate and Postdoctoral Studies Programs, Courses and University Regulations publication, both available at [www.mcgill.ca/study](http://www.mcgill.ca/study).

**Undergraduate Education Programs**

The Faculty of Education offers the following undergraduate programs. Details of each program may be found in this publication under the headings of the appropriate department.

All Bachelor of Education programs have been accredited by the Comité d’agrément des programmes de formation à l’enseignement (CAPFE).

The credit weights given are for students who have completed a Quebec CEGEP degree, or have been granted 30 credits of advanced standing. Students who have not completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies prior to commencing the B.Ed. must also complete a minimum of 30 credits of Freshman courses (in addition to the 120-credit program) for a total of 150 credits.

section 5.10.4.1: Bachelor of Education: Secondary Program (120 credits), offered by the Department of Integrated Studies in Education.
section 5.10.4.4: Bachelor of Education (Kindergarten and Elementary) (120 credits), offered by the Department of Integrated Studies in Education.

section 5.10.21: Bachelor of Education (B.Ed.) - Kindergarten and Elementary Education - First Nations and Inuit Studies (120 credits), offered by the Department of Integrated Studies in Education.

section 5.10.22.1: Bachelor of Education Kindergarten and Elementary Program (Jewish Studies Option); students following this option take 126 credits, offered by the Department of Integrated Studies in Education.

section 5.10.4.5: Baccalauréat en enseignement du français langue seconde (120 credits) (B.Ed. TFSL), offered by the Department of Integrated Studies in Education jointly with the Université de Montréal. (No Admissions for 2011-2012)

section 5.10.4.6: Bachelor of Education in Teaching English as a Second Language (120 credits), offered by the Department of Integrated Studies in Education.

section 5.12.4: Bachelor of Education (B.Ed.) - Physical and Health Education (120 credits), offered by the Department of Kinesiology and Physical Education.

section 5.10.4.2: Concurrent Bachelor of Music (Music Education)/Bachelor of Education in Music program (137 credits), offered jointly by the Department of Integrated Studies in Education and the Schulich School of Music. See also section 10.9.3.1: Concurrent Bachelor of Music (B.Mus.) - Major Music Education and Bachelor of Education (B.Ed.) - Music Elementary and Secondary (137 credits) under Schulich School of Music.

section 5.10.4.3: Concurrent Bachelor of Science/Bachelor of Education (Secondary) (135 credits), offered jointly by the Department of Integrated Studies in Education and the Faculty of Science.

A student who successfully completes any of the above programs, (and meets other requirements set out by the MELS (Ministère de l'Éducation, du Loisir et du Sport)) is recommended for certification as a teacher in the province of Quebec; see section 5.6.1.3: Quebec Teacher Certification.

section 5.12.5: Bachelor of Science (Kinesiology) (B.Sc.(Kinesiology)) - Kinesiology (90 credits), offered by the Department of Kinesiology and Physical Education.

The program entails a comprehensive understanding of human movement. Kinesiology is a multidisciplinary field viewing human movement from social, historical, psychological, or biological perspectives. The program provides students with a breadth of theoretical knowledge as well as an opportunity to explore related areas in greater depth, including minor programs available elsewhere within the University. An Honours program is available for particularly strong students.

5.6.1.1 General Admission Requirements

For information about admission requirements to the B.Ed., B.Sc.(Kinesiology), or the Concurrent B.Sc. and B.Ed., or B.Mus. and B.Ed. programs, refer to the Undergraduate Admissions Guide, found at www.mcgill.ca/applying. Applicants to the Concurrent B.Sc. and B.Ed. apply through the Faculty of Science, and applicants to the Concurrent B.Mus. and B.Ed. apply through the Faculty of Music.

For information about Inter-Faculty Transfer or Readmission, see Inter-Faculty Transfer or Readmission under University Regulations and Resources in this publication, as well as information posted on the Student Affairs Office website, www.mcgill.ca/edu-sao.

Although no additional prerequisite courses are required, the Faculty recommends that applicants to the B.Ed. Secondary, Science & Technology, Mathematics, and B.Ed. Physical & Health Education programs have appropriate background in Science and Mathematics courses, i.e., biology, chemistry, physics and mathematics. Students having other backgrounds will be considered for admission but will be required to complete prerequisite courses in mathematics and science that may increase the number of credits required for the degree.

5.6.1.1.1 Language Requirement for Applicants to B.Ed. TESL Program

The application process for the B.Ed. TESL program involves several steps. Students first apply to the University indicating their program choice. Those whose academic record meets minimum program requirements will be informed by the University that they are being considered for admission to the B.Ed. TESL program. Students being considered will need to pass written and oral English language proficiency tests as a further admission requirement, and will be contacted by email with information about how to make arrangements to take the test.

5.6.1.2 Credit Requirements

The Bachelor of Education (B.Ed.) requires 120 credits and leads to teacher certification. Students who have not completed Quebec CEGEP, French Baccalauréate, International Baccalauréate, or at least one year of university studies prior to commencing the B.Ed. must also complete a minimum of 30 credits of Freshman courses (in addition to the 120-credit program) for a total of 150 credits. The B.Sc. is a 90-credit program. Students who have not completed Quebec CEGEP, French Baccalauréate, International Baccalauréate, or at least one year of university studies are normally enrolled in a four-year B.Sc.(Kinesiology) program, which includes a 30-credit Freshman year for a total of 120 credits.

Students entering the five-year B.Ed., or four-year B.Sc.(Kinesiology) degree are in Year 0 and are required to complete the Freshman requirements applicable to their program.

Students who have completed previous university studies may be awarded transfer credits for their course work. This can only be determined after the formal application and all necessary supporting documents have been received by Enrollment Services. A minimum of 60 credits must be completed while in residence at McGill University in order to be eligible for a degree. Transfer credits for courses taken more than five (5) years before the time of admission are not permitted in subjects where there have been substantial content changes, nor in any pedagogy courses specific to the Quebec K-11 curriculum. Courses more than five (5) years old in other subject areas may be considered on an individual subject basis by the Program Director. For more details, see the Undergraduate Admissions Guide, found at www.mcgill.ca/applying.
5.6.1.3 Quebec Teacher Certification

Teacher Certification in Quebec is the responsibility of the Ministère de l'Éducation, du Loisir et du Sport (MELS). Students who complete requirements for the Bachelor of Education degree and who meet the MELS requirements (specified below) are recommended by the University for certification.

Language Proficiency

Fluency (oral and written) in the language of instruction is a requirement for all those seeking certification.

Confidential declaration concerning judicial record

In June 2005, the National Assembly of Quebec adopted an Act amending the Education Act and the Act respective of private education. The amendments concern the verification of judicial antecedents of persons holding or applying for a permit to teach in the youth, adult, and vocational sectors. Anyone seeking teacher certification in the Province of Quebec is required to submit a confidential declaration concerning their judicial record to the Minister of Education. This document is available on the MELS website at www.mels.gouv.qc.ca/dftps/interieur/PDF/Antecedents_judiciaires_f.pdf.

Teaching Diploma

All graduates of the Bachelor of Education Teacher Education programs who are Canadian citizens or permanent residents may apply for a permanent Teaching Diploma (Brevet) immediately upon graduation.

Permit

Holders of a temporary permit or of a permanent diploma wishing to teach in another province or in another country must apply directly to the Teacher Certification Agency in the relevant province or country.

Teachers from other provinces or countries who wish to teach in Quebec must apply to:

Ministère de l’Éducation du Loisir et du Sport
600 Fullum, 10e étage
Montréal, Québec H2K 4L1
Telephone: 514-873-4630

Please refer to the following website for further information on obtaining a Quebec Teaching Licence: www.mels.gouv.qc.ca.

It is recommended that applicants intending to teach outside of Quebec obtain information beforehand concerning the requirements for certification.

5.6.1.3.1 International Students

In addition to the CAQ and Study Permit, international students in Bachelor of Education programs must obtain a Work Permit (Internship) issued by Citizenship and Immigration Canada as a requirement for the mandatory Field Experiences. Consult the International Students website for more information www.mcgill.ca/internationalstudents/predeparture/documents.

5.6.2 Programs of Professional Development

The Faculty of Education offers programs of professional development in several fields. All such programs are 30 credits, unless otherwise indicated, and may be completed through part-time study. They are intended to provide an opportunity for teachers and other educators to enhance their existing knowledge and skills or to develop new ones, and thus are normally available only to those who are already certified as teachers.

Detailed information regarding general regulations, admission requirements, and program profiles for the following certificates and diplomas may be found in the section for offering departments.

5.6.2.1 Department of Educational and Counselling Psychology

Certificate in Inclusive Education

Diploma in Human Relations and Family Life Education

Graduate Certificate in Counselling Applied to Teaching

Further information is available from the Program Coordinator:

Dean Thomson
Office: Education Building, Room 614
Telephone: 514-398-4248
Fax: 514-398-6968
Email: dean.thomson@mcgill.ca

5.6.2.2 Department of Integrated Studies in Education

First Nations and Inuit Education (FNIE): The Faculty of Education collaborates with various Indigenous communities and institutions offering programs whose courses are given either at McGill or off campus. In collaboration with the Kativik School Board, the Cree School Board, the Kahnawake Education...
Centre, and various other Indigenous communities in Quebec, FNIE delivers field-based teacher education programs leading to initial teacher certification and to the B.Ed.Cert.Teach. degree. FNIE also works with departments to meet other educational needs of Indigenous peoples.

Director of Programs in First Nations and Inuit Education: Professor Donna-Lee Smith
Office: Education Building, Room 244
Telephone: 514-398-4533
Fax: 514-398-2553
Email: donnalee.smith@mcgill.ca
Website: www.mcgill.ca/edu-integrated

Centre for Educational Leadership (CEL): CEL, a unit of the Department of Integrated Studies in Education, is committed to the development of leadership for all educational stakeholders through teacher preparation, graduate studies, research, and varied approaches to professional development. The Centre seeks to promote dialogue, partnerships, and projects among teachers, policy makers, and other educational leaders in the local community and beyond through credit and non-credit work, research, and development activities.

Director: Dr. Lynn Butler-Kisber
Office: Education Building, Room 442
Telephone: 514-398-7149
Fax: 514-398-7436
Email: lynn.butlerkisber@mcgill.ca
Website: www.mcgill.ca/edu-integrated

Courses offered through Continuing Studies and Summer Studies: A wide range of courses, enabling students either to acquire prerequisite credits or to earn credit towards their degree, is offered through Continuing Studies and Summer Studies. For courses offered, please check Minerva.

5.6.3 Programs for First Nations and Inuit

The following programs are offered for First Nations and Inuit teachers by the Faculty of Education.

Information can be obtained by contacting:

First Nations and Inuit Education (FNIE)
3700 McTavish Street, Room 244
Montreal, Quebec H3A 1Y2
Telephone: 514-398-4533
Fax: 514-398-2553
Website: www.mcgill.ca/edu-integrated/fnie

Bachelor of Education – Kindergarten and Elementary First Nations and Inuit Studies Option:

Detailed information about this program may be found in section 5.10.21: Bachelor of Education (B.Ed.) - Kindergarten and Elementary Education - First Nations and Inuit Studies (120 credits).

Detailed information about the following programs may be found in section 5.11: Programs for First Nations and Inuit:

- Bachelor of Education for Certified Teachers Elementary Education
- Certificate in Education for First Nations and Inuit
- Certificate in First Nations and Inuit Student Personnel Services (This program is offered by the Department of Educational Psychology and Counselling through First Nations and Inuit Education. Restrictions apply to enrolment.)
- Certificate in Middle School Education in Aboriginal Communities
- Certificate in First Nations and Inuit Educational Leadership
- Certificate in Aboriginal Education for Certified Teachers
- Certificate in Aboriginal Literacy Education

5.7 Faculty Regulations for Undergraduate Programs

Please consult the University Regulations and Resources section of this publication for regulations and procedures regarding registration, fees, course load, course change (drop/add), withdrawal, verification, examinations, inter-university transfer, and graduation. In addition, the following section provides regulations specific to Faculty of Education students.
Note: Each student in the Faculty of Education must be aware of and comply with the Faculty regulations as stated in this publication. While departmental and Faculty advisers and staff are always available to give advice and guidance, the ultimate responsibility for complete and correct course selection and registration, for compliance with, and completion of, program and degree requirements, for the observance of regulations and deadlines, and for academic records, rests with the student. It is the student’s responsibility to seek guidance. Misunderstanding will not be accepted as cause for dispensation from any regulation, deadline, program, or degree requirement.

5.7.1 Advising

Refer to the University Regulations and Resources > Undergraduate Advising section of this publication, and the Student Affairs website, www.mcgill.ca/edu-sao, for further information. Assistance is also available by emailing: sao.education@mcgill.ca.

All newly admitted students are required to attend the academic advising sessions scheduled during August prior to the beginning of the Fall term. For a detailed description of advising and registration procedures, students should refer to Welcome to McGill at www.mcgill.ca/newstudents. Additional advising material is also available on the Student Affairs website, www.mcgill.ca/edu-sao/new/advising.

Academic advising for all returning students takes place in March for the upcoming academic year. Detailed advising and registration information is posted on the Student Affairs website: www.mcgill.ca/edu-sao/current/advising. Students entering their graduating year are encouraged to meet with their adviser during this Advising period.

All students admitted into the Freshman year (Year 0) are required to meet with an adviser during the Advising period in August.

A list of courses for Freshman (Year 0) students is available as part of the advising material for each program at www.mcgill.ca/edu-sao/new/advising.

5.7.2 Code of Professional Conduct (Faculty Regulations for Undergraduate Programs)

Faculty of Education programs have professional components and field placements. In all aspects of any program, on campus and off, students are expected to demonstrate ethical, responsible, and professional behaviour in the performance of their duties, to conduct themselves in accordance with the law (e.g., Youth Protection), and to meet the expectations of schools, boards, and other host institutions receiving them for field placements. This applies to all aspects of professional conduct, including but not limited to respect for persons, property, and confidentiality, appropriate dress, and punctuality. Failure to meet these expectations, regardless of performance in courses or other formal program requirements will be taken into account in the assessment of the students' overall academic standing in the program and, in the most serious instance, may result in a requirement to withdraw from the program.

5.7.3 English Language Requirement

The Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) requires that all students in teacher education programs demonstrate their proficiency in the language of instruction. To fulfill this obligation, B.Ed. students are required to write the English Examination for Teacher Certification (EETC) before the end of their first semester in the program, except for Year 0 (Freshman) students who will write the examination in their second year (Year 1). Students must pass the examination prior to their Third Field Experience.

The examination is coordinated by an independent body, the Centre for the English Exam for Teacher Certification. McGill assists with the administration and scheduling of the examination. To write this examination, students must first register on Minerva for a section of EDEC 215 in the Fall term, then register with the Centre www.ceetc.ca and pay a $70 fee before writing the test. Students are permitted four opportunities to write and pass the examination.

Students who do not pass the examination the first time are expected to take EDEC 202 in the Winter term of their first year. After successful completion of EDEC 202, students are required to take the EETC again. A fee is charged each time the examination is written. Students who do not pass the examination on their fourth attempt will be placed in Unsatisfactory Standing and must withdraw from the program.

Note: This requirement does not apply to students in the B.Ed. TFSL or the Certificate in Education for First Nations and Inuit programs.

5.7.4 Additional Requirements for Students in the B.Ed. TFSL program

No admissions for 2011-12.

For students currently enrolled in the B.Ed. TFSL program, there is a compulsory French language test coordinated by an independent body, which must be passed prior to the Third Field Experience. Students are permitted four opportunities to write and pass this test. Students who do not pass the examination on their fourth attempt will be placed in Unsatisfactory Standing and must withdraw from the program.

5.7.5 Judicial Record Verification for Students in the Bachelor of Education Programs

Quebec's Education Act, section 261.0.2, grants school boards the right to verify the judicial record of any person regularly in contact with minors, and this includes student teachers. Each school board or private school may have its own administrative procedures for verification. Students are responsible for complying with their request. Anyone unable to obtain the required security clearance will not be permitted to undertake their Field Experiences, which is a mandatory requirement of the program, and consequently would have to withdraw from the program.
5.7.6 Course and Program Regulations

5.7.6.1 Course Load

Undergraduate Education programs can normally only be followed on a full-time basis. Students must take a minimum of twelve (12) credits per term unless the Executive Director, Student Affairs gives them special permission. Special permission must be requested prior to the end of Course Add/Drop period.

Any absence or reduction in course load that may impact the regular progression of a student’s program must have written approval by the Executive Director, Student Affairs.

The normal course load per term is 15 credits. Students in Satisfactory Standing may take up to 17 credits per term. Students whose CGPA is above 3.00 may request permission to take an overload. Overloads are not allowed in major Field Experience terms for students in the B.Ed. programs. Students in Probationary Standing take a maximum of 12 credits.

5.7.6.2 Time Limit and Credits for Completion of Degrees

Students are expected to complete their program no more than five (5) years after their initial registration for the B.Ed. degree and after four (4) years for the B.Sc.(Kinesiology) degree. Students who enter into a Freshman year become subject to these regulations one year after their initial registration. Students who exceed these limits must apply to the Faculty for permission to continue.

Students registered in the B.Ed. or B.Sc. are expected to complete the requirements of their programs and their degree within 150 or 120 credits respectively. Students will receive credits for all courses (subject to degree regulations) taken up to and including the semester in which they obtain the full degree credit requirements. Students who wish to remain at McGill beyond that semester must seek permission of the Executive Director, Student Affairs. Students who wish to exceed the specified minimum number of credits required for their degree must also seek permission of the Executive Director, Student Affairs. If permission is granted, credits over the limit will be flagged for no credit and the grades will not count in the CGPA.

Permissi.on for exceeding the time and/or credit limits will normally be granted only for valid academic reasons, such as change of program or approved part-time status. If permission is granted, students will receive credit only for required and complementary courses necessary to complete their program requirements.

5.7.6.3 Course Requirements

All required and complementary courses used to fulfill program requirements must be completed with a grade of C or better. Students who fail to obtain a satisfactory grade in a required course must either pass the supplemental examination if available, or repeat the course. If the failed course is a complementary course required by the program, a student may choose to replace it with another complementary course. If a student repeats a required course in which a D was received, credit will only be given once. A failure (F, J, KF, WF) in any level of Field Experience or in the English Examination for Teacher Certification, fourth attempt, places a student in Unsatisfactory Standing requiring withdrawal from the program. Further details on requirements for Field Experience are listed in section 5.8: Student Teaching/Field Experience.

5.7.6.4 Courses Taken as Transfer Credit

Students wishing to study away at a university outside of Quebec must obtain approval from their academic adviser and the Student Affairs Office prior to taking a transfer course. Students will only be permitted to take courses required to complete their program. Students are not permitted to take transfer courses during their graduating term. Please refer to University Regulations and Resources > Transfer Credits for further information.

5.7.6.5 Inter-University Transfer Credit

Students may, with the permission of their academic adviser, register at any university in the province of Quebec for three (3), or exceptionally six (6) credits per term in addition to their registration at McGill. Students will only be permitted to take courses required to complete their program. Students are not permitted to take transfer courses during their graduating term. Please refer to University Regulations and Resources > Quebec Inter-University Transfer Agreement (IUT) in this publication for further information.

Note: This restriction does not apply to students in the Joint B.Ed. TFSL program.

5.7.6.6 Distance Education (online) Courses

A maximum of 6 credits of elective courses taught as distance education/online courses may be used toward the B.Ed. or B.Sc.(Kinesiology) degree at McGill. Courses taught through distance education/online may not be used to complete program requirements, including subject area courses for B.Ed. students, except on an individual basis when serious documented circumstances warrant it. In such cases, prior approval must be obtained from the student's program adviser and the Associate Dean.

5.7.6.7 Courses Taken under Satisfactory/Unsatisfactory Option

Required or complementary courses, including subject area courses for B.Ed. students, cannot be taken under this option. Please consult University Regulations and Resources > Courses Taken under the Satisfactory/Unsatisfactory (S/U) Option in this publication.
5.7.6.8 Course Equivalencies and Overlap

Students will not receive additional credit toward their degree for any course that is considered equivalent or that overlaps in content with a course for which they have already received credit at McGill, or any other institution. It is the student's responsibility to be aware of exclusion clauses specified in the course description in this publication and Minerva. Students should also refer to the following website for specific information about advanced standing credits and McGill course exemptions: www.mcgill.ca/students/courses/plan/transfer, as well as the following website for Faculty-specific information: www.mcgill.ca/edu-sao.

5.7.6.9 Dress Regulations

All students enrolled in teacher certification programs are advised that school boards and individual schools may have regulations concerning acceptable attire. Students must adhere to any such regulations.

Students in Kinesiology and Physical Education programs are required to wear appropriate clothing for activity courses as approved by the instructor(s). Students may also be responsible for providing some items of personal equipment.

5.7 Registration

All students register by Minerva, McGill's web-based registration system. For detailed information about registration, refer to the University Regulations and Resources > Registration section of this publication, Welcome to McGill at www.mcgill.ca/newstudents, the Student Affairs website, www.mcgill.ca/edu-sao, and to the Student Records website, www.mcgill.ca/student-records.

Students who fall into Unsatisfactory Standing at the end of the academic year will have their registration cancelled. They may not re-register in the Faculty. Students who can provide proof of extenuating circumstances may appeal to the Executive Director, Student Affairs. Please refer to University Regulations and Resources > Readmission in this publication and to www.mcgill.ca/edu-sao for Faculty-specific information.

Students who have an outstanding fee balance from a previous term or outstanding fines will not be permitted to register. Students with financial problems should consult the Student Aid Office, Brown Student Services Building.

Students who decide not to return to McGill must withdraw from all of their courses on Minerva or inform the Student Affairs Office in writing. For further information, refer to University Regulations and Resources > Regulations Concerning Course Withdrawal and University Regulations and Resources > Regulations Concerning University Withdrawal in this publication.

5.7.7 Course Registration

Students in Faculty of Education programs should register for the courses as outlined in the individual program overviews and advising material posted on the Student Affairs Office website, www.mcgill.ca/edu-sao/new/advising and www.mcgill.ca/edu-sao/current/advising. For more information on registration, see University Regulations and Resources > Registration in this publication.

Students in the B.Ed. programs who are required to be registered for Field Experience should consult section 5.8: Student Teaching/Field Experience for more information.

Some courses may require special permission. Students should consult the Undergraduate Programs, Courses and University Regulations publication and/or the Class Schedule on Minerva well in advance of the Course Change period to determine if permission is required of the instructor, the department, or the Faculty for any course they wish to take.

A number of courses have prerequisites that must be completed prior to course registration. Permission to waive a prerequisite requirement must be given in writing by an academic adviser.

5.7.7.2 Withdrawals

There are three course withdrawal periods, published on the University website, www.mcgill.ca/importantdates, and in this publication under University Regulations and Resources > Regulations Concerning Course Withdrawal. Students may, under exceptional circumstances, be granted permission to withdraw after the published deadlines. Such students should contact the Student Affairs Office for further information.

Students withdrawing from a Field Experience should refer to section 5.8: Student Teaching/Field Experience.

5.7.8 Attendance

The class attendance necessary to satisfy course requirements varies from course to course. All students are expected to apprise themselves of and meet course-specific requirements.

Attendance is particularly critical in B.Ed. programs, as these are designed to develop required professional competencies, which prepare students for the demands of the teaching profession. Students must therefore inform themselves of, and adhere to, the attendance requirements for all Education courses. Special attention should be paid to the requirements of intensive courses and professional seminars scheduled around Field Experiences. Unexcused absences may result in exclusion from a course, course failure, and/or removal from any associated Field Experience.

For Field Experiences, punctual attendance is required throughout. Absences are only excused in exceptional circumstances. Please refer to section 5.8: Student Teaching/Field Experience.

Students in B.Ed. programs should be aware that some Field Experiences may begin in August, some are held in the Spring, and some may overlap with the official exam period. In addition, some professional seminars follow unique schedules. It is the student's responsibility to consult the Class Schedule on Minerva. In the case of a conflict with a final exam, students will be excused from the Field Experience or professional seminar on the exam date.
5.7.9  Grading

During the first week of lectures, each instructor will provide students with a written course outline that should include a description of the means of evaluation to be used in the course.

For further information on Grading, see University Regulations and Resources > Grading and Grade Point Averages (GPA).

5.7.10  Incomplete Grades

An instructor who believes that there is justification for a student to delay submitting term work may extend the deadline until after the end of the course. In this case, the instructor will submit a grade of "K" (Incomplete), indicating the date by which the work is to be completed. The maximum extensions for the submission of grades to the Student Affairs Office are as follows: April 30 for Fall term courses; July 30 for Winter term courses; and November 30 for Summer courses. It is important to note that instructors may impose earlier deadlines than those listed. Please refer to University Regulations and Resources > Incomplete Courses for more information.

5.7.11  Examinations

Students should see Examinations in the University Regulations and Information section of this publication for more information about final examinations and deferred examinations. The exam schedules are posted on the McGill website, www.mcgill.ca/students/exams, normally one month after the start of classes for the Tentative Exam Schedule, and two months after the start of classes for the Final Examination Schedule.

Students are warned not to make travel arrangements to leave Montreal prior to the scheduled end of any examination period.

5.7.11.1  Supplemental Examinations

Students who wish to write a supplemental examination for a course in which a supplemental examination is available must apply on Minerva within the published deadline. Please refer to the Student Information website, www.mcgill.ca/students/exams, for important information.

Students must be in Satisfactory or Probationary Standing and have received a final grade of D, J, F, or U in the course.

5.7.11.2  Reassessment and Rereads

In accordance with the Charter of Student Rights, and subject to the conditions stated therein, students have the right to consult any written submission for which they have received a mark and the right to discuss this submission with the examiner (see Reassessments and Rereads in the University Regulations and Information section of this publication).

The Faculty recognizes two types of reassessments or rereads:

1. Reassessment of course work (term papers, mid-terms, assignments, quizzes, etc.);
2. Reread of a final exam.

5.7.11.3  Reassessment of Course Work

Reassessment of course work is administered by the course instructor or the offering department. Requests, made by students, must be made within 10 working days of the date of return of the graded materials. The reviewer will assess the fairness of the original grade rather than remark the assignment as he or she would have graded it. Reassessments should normally be completed within 20 working days of the request. Grades may be lowered or raised, or they may remain the same, as a result of the reassessment. The grade obtained on the reassessment takes precedence over the original grade.

5.7.11.4  Rereads of Final Exams or Final Term Papers or Projects

These rereads are administered by the Student Affairs Office, but conducted by the units involved. Students must apply in writing to the Student Affairs Office by March 31 for courses in the Fall term, June 30 for courses in the Winter, and by September 30 for Summer term courses (these deadlines are strictly enforced and no requests will be accepted past them). Students are assessed a fee of $35.00 for such rereads. It is strongly recommended, but not required, that students consult with the instructor of the course before requesting an official reread. The reviewer will assess the fairness of the original grade rather than remark the assignment as he or she would have graded it. Grades may be lowered or raised, or they may remain the same, as a result of the reread. The grade obtained on the reread takes precedence over the original grade.

Reassessments and rereads in courses not in the Faculty of Education are subject to the deadlines, rules, and regulations of the particular faculty.

5.7.12  Academic Standing

Academic Standing is based primarily on students’ Cumulative Grade Point Average (CGPA), but may also be affected by their Term Grade Point Average (TGPA). For students in the B.Ed. programs, it is also based on their performance in the Field Experience courses, and the English Examination for Teacher Certification (EETC). Academic Standing, which is assessed after the end of term, determines if students will be allowed to continue their studies in the next term and if any conditions will be attached to their registration.

Decisions about Academic Standing in the Fall term are based only on grades that are available in January. Grades for courses in which students have deferred examinations and Fall term grades for courses that span the Fall and Winter terms do not affect Academic Standing for the Fall term, even though they will ultimately affect students’ Fall TGPA. Therefore, Academic Standing for the Fall term is designated as “Interim” and should be interpreted as advisory.
Interim Standing decisions are mentioned below only if the rules for them differ from those for regular Standing decisions. Students who do not receive a Pass grade for a Fall term EDFE (Field Experience course), or who do not pass the English Examination for Teacher Certification (EETC) after four attempts prior to their third field experience, are placed in Unsatisfactory Standing.

5.7.12.1 Satisfactory/Interim Satisfactory Standing

Students in Interim Satisfactory or Satisfactory Standing:
- may continue in their program;
- have a CGPA of 2.00 or greater.

5.7.12.2 Probationary/Interim Probationary Standing

5.7.12.2.1 Interim Probationary Standing at the end of the Fall term

Students in Interim Probationary Standing at the end of the Fall term:
- may continue in their program;
- should evaluate their course load and reduce it;
- should consult with their program adviser before the withdrawal deadlines;
- are permitted to proceed with the next scheduled Field Experience course, i.e., Winter or Spring, for First- or Second-Year Field Experiences only.

5.7.12.2.2 Probationary Standing at the end of the Winter term

Students in Probationary Standing at the end of the Winter term:
- may continue in their program;
- must carry a reduced load (maximum of 12 credits per term);
- are not permitted to take student teaching/Field Experience courses of any level during the next academic year;
- must raise their TGPA and CGPA to return to Satisfactory;
- should see their departmental adviser to discuss their course selection.

5.7.12.2.3 Students will be placed in Probationary Standing

- if their CGPA falls between 1.50 and 1.99, and if they were previously in Satisfactory Standing;
- if they receive a grade of D for a Field Experience course of any level and were previously in Satisfactory Standing;
- if their CGPA falls between 1.50 and 1.99 and their TGPA in Fall or Winter is 2.50 or higher, and if they were previously in Probationary or Interim Unsatisfactory Standing;
- if their CGPA is between 1.50 and 1.99 and their TGPA is 2.50 or higher, they were previously in Unsatisfactory Readmitted Standing, and have satisfied the relevant conditions specified in their letter of readmission.

5.7.12.3 Unsatisfactory/Interim Unsatisfactory Standing

5.7.12.3.1 Interim Unsatisfactory standing at the end of the Fall term

Students in Interim Unsatisfactory standing at the end of the Fall term:
- may continue in their program;
- should evaluate their course load and reduce it as appropriate;
- should consult a departmental adviser, before the withdrawal deadlines, about their course selection for the Winter term;
- will not be permitted to proceed with the next normally scheduled Field Experience.

5.7.12.3.2 Unsatisfactory Standing at the end of the Winter term

Students in Unsatisfactory Standing at the end of the Winter term:
- have failed to meet the minimum standards set by the Faculty;
- may not continue in their program.

5.7.12.3.3 Readmitted Unsatisfactory Standing

Students who were previously in Unsatisfactory Standing and who were readmitted to the Faculty by the Executive Director, Student Affairs or the Committee on Student Standing will have their standing changed to Readmitted Unsatisfactory Standing. Their course load is specified in their letter of readmission, as are the conditions they must meet to be allowed to continue in their program. They should see their departmental adviser to discuss their course selection.

5.7.12.3.4 Students will be placed in Unsatisfactory Standing (Winter or Summer term) or Interim Unsatisfactory Standing (Fall term)

- if their CGPA falls or remains below 1.50;
The designation Dean's Honour List may be awarded to graduating students under the following conditions:

- if their TGPA falls below 2.50 and their CGPA is below 2.00 and they were previously in Probationary, Unsatisfactory Readmitted, or Interim Unsatisfactory Standing;
- if they receive a failure (F, J, KF, WF) in a student teaching/Field Experience course of any level;
- if they receive a failure in the English Examination for Teacher Certification (EETC) for the fourth time;
- if they were previously in Unsatisfactory Standing and were readmitted to the Faculty by the Executive Director, Student Affairs or the Committee on Student Standing and have not at least satisfied the conditions to attain Probationary Standing that were specified in the letter of readmission.

Note: Students in either the Concurrent B.Sc. and B.Ed. or the B.Mus. and B.Ed. program who receive an F or J in any Education Field Experience course, or fail the English Examination for Teacher Certification (EETC) for the fourth time, are placed in Unsatisfactory Standing. Although they may complete their term, they are required to withdraw from the Concurrent program. They may, however, contact the Faculties of Science or Music regarding application to a Bachelor of Science or a Bachelor of Music degree.

5.7.12.3.5 Readmission

Students should apply on Minerva by July 1 for readmission to the Fall term. Appeals for readmission by students in Unsatisfactory Standing should be addressed to the Executive Director, Student Affairs. Readmission will be considered only when proof of extenuating circumstances that affected academic performance can be provided (e.g., medical or other documentation).

Students in Unsatisfactory Standing for the second time must withdraw permanently. Students who were placed in Unsatisfactory Standing due to a failure in student teaching/Field Experience cannot apply for readmission for at least one full year and are advised to apply for readmission by April 15. Please refer to the Student Affairs Office website for further information: www.mcgill.ca/edu-sao/current/transfers.

5.7.12.3.6 Incomplete Standings

- Must clear K’s, L’s, or Supplemandalts
- To Be Determined
- Incomplete

Students with Incomplete Standings in the Winter or Summer term may register for the Fall term, but their Standing must be resolved by the end of the Course Change period for that term. Students whose Incomplete Standing changes to Satisfactory, Probationary, or Interim Unsatisfactory Standing may continue in the program. Students whose Standing changes to Unsatisfactory may not continue in their program.

Students whose Standing changes to Unsatisfactory and who wish to ask for permission to continue in their program must make a request to the Associate Dean of Student Affairs as soon as they are placed in Unsatisfactory Standing. Readmission will be considered only when proof of extenuating circumstances that affected academic performance can be provided (e.g., medical or other documentation).

Students whose Standing is still Incomplete by the end of the Course Change period should immediately consult with the Student Affairs Office.

5.7.13 Graduation Requirements

To be eligible for a B.Ed. or the B.Sc. (Kinesiology) degree, students must fulfill all Faculty and program requirements. This includes completing the minimum credit requirements for the degree as stipulated in the letter of acceptance; obtaining a grade of C or better in all required and complementary courses; and achieving a minimum cumulative grade point average (CGPA) of 2.00. Students must satisfactorily complete a minimum of 60 credits at McGill University toward the fulfillment of the degree requirements. In addition, students must complete specific components of their program at McGill.

Students enrolled in Kinesiology and Physical Education programs are required, before the end of their final year of study, to show proof of certification in Standard Level Safety Oriented First Aid, and Level C in Cardiopulmonary Resuscitation, or equivalencies.

Students must complete their degree requirements within five (5) years after their initial registration for the B.Ed. degree and within four (4) years after their initial registration for the B.Sc.(Kinesiology) degree. Students in the part-time B.Ed. for Certified Teachers and B.Ed.(Vocational) programs are allowed a maximum of 12 years to complete the requirements for the degree.

It is the student’s responsibility to ensure that all Faculty requirements are met before graduation.

Early in their graduating year, all students should check with their adviser to make sure that they will meet all program requirements in time for graduation. It is essential that students in their final year indicate the expected date of graduation by applying for graduation on Minerva; see University Regulations and Resources > Graduation in this publication for more information. During the graduation approval process, students can query their graduation record on Minerva to verify that the Faculty has approved their graduation. When a final-year student changes the expected date of graduation, the student must notify the Student Affairs Office immediately. It is also the student's responsibility to complete the required forms for teacher certification, and to check that his/her name appears on the graduation list. Further information is available on the Student Affairs Office website: www.mcgill.ca/edu-sao.

Students are not permitted to take courses outside McGill University during the last term prior to graduation. Students who fail to graduate as expected and who do not re-register must apply to the Executive Director, Student Affairs to graduate. Application to graduate must be made sufficiently in advance of the expected graduation date to allow the Faculty to verify the student's record.

Information pertaining to the convocation ceremonies can be obtained on the McGill website: www.mcgill.ca/convocations.

5.7.14 Undergraduate Program Awards

5.7.14.1 Dean's Honour List Designation for Graduating Students

The designation Dean's Honour List may be awarded to graduating students under the following conditions:
• students must be among the top 10% of the Faculty’s graduating students;
• students must have completed a minimum of 60 McGill credits to be considered;
• the designation is based on the cumulative academic record (CGPA).

5.7.14.2 Dean’s Honour List Designation for In-course Students
The designation Dean’s Honour List may be awarded to in-course students under the following conditions:
• students must be among the top 10% of the Faculty’s students;
• students must have completed at least 27 graded credits during the academic year;
• the designation is based on the sessional (Fall and Winter) GPA.

5.7.14.3 Scholarships and Awards
Various scholarships and awards are open to both graduating and in-course students. Full details may be found in the Undergraduate Scholarships and Awards Calendar available at www.mcgill.ca/students/courses/calendars.

5.8 Student Teaching/Field Experience

The Office of Student Teaching (OST), www.mcgill.ca/ost, is responsible for arranging the placement and evaluation of all student teachers in supervised Field Experiences.

5.8.1 Field Experiences

Field Experiences:
• are required courses (with the subject code EDFE) for all students in B.Ed. programs from first through fourth year;
• are the sole responsibility of the Faculty of Education and are organized by the Office of Student Teaching. Under no circumstances should students make their own placement arrangements;
• must be taken in the required sequence;
• require that newly admitted and returning students follow registration procedures (see section 5.7.7: Registration) or risk not being placed in a host school;
• are completed in schools within anglophone school boards in the province of Quebec in the majority of cases, with the exception of the B.Ed. TESL program Field Experiences, which take place in schools within francophone school boards in the province of Quebec;
• can be specialized in some circumstances. Refer to the OST website for information regarding such opportunities (distance, special needs, resource room, adult education, etc.);
• could require that students travel some distance to their host school and students should therefore budget time and money for this purpose;
• require that students be placed at host schools for specific periods of time ranging from 10 to 40 days;
• may begin before the first day of lectures or end after the last day of lectures;
• may continue during the University-scheduled Study Break in the Winter term;
• may continue through May into the Summer term (refer to the OST website or Minerva for exact dates).

5.8.2 Registration

5.8.2.1 Newly Admitted Students

Newly admitted students:
• in B.Ed. K/Elementary, B.Ed. TESL, B.Ed. Secondary programs must be registered for Field Experience 1 by the end of August (see www.mcgill.ca/importantdates for deadline);
• in B.Ed. Secondary Science and Math program should consult an adviser during the August advising sessions prior to registering for Field Experience courses;
• in B.Ed. Music, and B.Ed. Physical and Health Education programs must register in February for Field Experience 1 (Summer term);
• who are registered for a Field Experience will receive instructions for accessing the online Student Teaching Placement Form at their official @mail.mcgill.ca email address. Forms must be submitted by the date indicated in the email;
• who have acquired formal teaching experience prior to admission to the Bachelor of Education program may be granted exemption for Field Experience 1. See section 5.8.4.3: Exemption and Transfer Credit.
5.8.2.2 Returning Students

Returning students:

- must register for Field Experience 3 on Minerva by mid-April of the preceding academic year (see www.mcgill.ca/importantdates for deadline). Field Experience 3 begins in late August before the start of lectures. (See Minerva or OST website for details.)
- must register for Field Experience 4 on Minerva by the beginning of November (see www.mcgill.ca/importantdates for deadline);
- who are registered for a Field Experience will receive instructions for accessing the online Student Teaching Placement Form at their official @mail.mcgill.ca email address. Forms must be submitted by the date indicated in the email;
- must be in Satisfactory Standing and have satisfied all prerequisite and corequisite course requirements (refer to www.mcgill.ca/edu-sao/current). Minerva does not necessarily prevent students from registering for courses that they should not take. It is the student's responsibility to be aware of prerequisites, corequisites, restrictions, and Faculty regulations that apply to the courses in which they register. Students should consult an academic adviser for assistance;
- in B.Ed programs who wish to transfer from one program to another will not be required to repeat Field Experience 1.

5.8.3 Student Responsibilities

Students are responsible for familiarizing themselves with the policies and rules governing all aspects of Field Experience, including pedagogical and professional behaviour, available at www.mcgill.ca/ost.

Students should not engage in any type of employment during Field Experience, nor register for any course that might interfere with the successful outcome of a Field Experience.

5.8.3.1 Guidelines (Syllabus)

Detailed guidelines and evaluation forms for every Field Experience are posted on the OST website, arranged by program and year. Students are responsible for familiarizing themselves with the objectives, evaluation criteria, and forms for each level of Field Experience, and must submit all completed evaluation forms to the OST on the first business day following the end of the Field Experience in order to receive a grade.

5.8.3.2 Attendance and Absences

Punctual attendance is required at the assigned school for the entire Field Experience. Alternate dates cannot be arranged at the request of the student. Unexcused absences from intensive courses and professional seminars may result in exclusion from the course, course failure, and/or removal from any associated Field Experience.

Days absent due to illness or McGill exams must be made up at the end of the Field Experience. Absences due to illness longer than a few days require a valid medical note (see www.mcgill.ca/studenthealth/notes) to be submitted to the OST, and the outcome of the Field Experience will be evaluated on an individual basis. Student teachers must contact the following people as soon as possible on the morning of the day of their absence:

- School office
- Cooperating teacher
- Office of Student Teaching, telephone 514-398-7046
- Field supervisor

Student teachers are permitted to be absent for religious holy days, as outlined in McGill's Policy for the Accommodation of Religious Holy Days; see www.mcgill.ca/student-records/holidays. Students must notify the OST, cooperating teacher, and field supervisor before the Field Experience begins if possible, or at least two weeks before the planned absence. The missed days must be made up, usually at the end of the Field Experience.

Absences related to McGill Intercollegiate Sport events are evaluated by the director of the OST on a case-by-case basis. Student teachers must submit a signed copy of the Intercollegiate Sport Event Accommodation form (see www.mcgill.ca/deanofstudents/intercollegiateaccommodation) to the OST at least two weeks in advance of each conflict.

Absences for any other reason, including but not limited to: marriage, family parties, vacation, university extracurricular activities, employment, or conflicting courses, are not permitted during Field Experience under any circumstances. Students should consult an academic adviser if they need to rearrange their course schedule.

5.8.3.3 Judicial Record Verification

See section 5.7: Faculty Regulations for Undergraduate Programs > section 5.7.5: Judicial Record Verification for Students in the Bachelor of Education Programs for information on the requirement to obtain this security clearance. Additional information can be found on the OST website.

5.8.3.4 Work Permit for International Students

International students (students who are not Permanent Residents or citizens of Canada) must apply for an internship/co-op work permit issued by Citizenship and Immigration Canada as a requirement for their mandatory Field Experiences. This is not the same as an off-campus work permit. The internship/co-op work permit is free of charge, but takes time to obtain and may require a medical exam. Detailed instructions are available on the OST website. For assistance with the application students should contact International Student Services, www.mcgill.ca/internationalstudents. Students must submit a copy of their valid permit to the OST before the Field Experience starts.
5.8.4 Grading and Credit

Field Experiences are graded "Pass/Fail". Students must submit all completed evaluation forms to the OST immediately following their Field Experience in order to receive a grade.

Where a student is experiencing serious difficulties in a Field Experience but has demonstrated some potential to successfully reach the required standard, the student will be granted a "D" grade. In this case, the director of the OST has the authority to grant special permission for a student to repeat a Field Experience during the next term in which the course is offered. This special permission will be granted once only in a student's program. Students receiving a "D" grade are also required to repeat the corequisite seminar or other corequisite course as specified by the director. The original grade for the corequisite seminar or course will be excluded from the GPA and credits; only the second grade will be retained.

Students must receive a Pass grade in order to proceed in the B.Ed. program. Failure (F, J, KF, WF) in any Field Experience places a student in Unsatisfactory Standing, requiring withdrawal from the Teacher Education Program. Students who fail in a Fall term Field Experience may be allowed to continue taking courses in the program to enable transfer to another faculty.

A student may appeal a failing grade or termination of a Field Experience by making a formal application to the Executive Director, Student Affairs.

5.8.4.1 Termination of Field Experience

At any time, students may be removed from their Field Experience placement at the request of the host school administrator and cooperating teacher, or at the request of the Director of Student Teaching. Students who are removed from a Field Experience placement will be informed of the reason for the termination and will meet with the Director.

Circumstances that could lead to termination include, but are not limited to:

- Prerequisite courses not successfully completed.
- Exceeding the number of permissible unexcused absences for corequisite courses (consult the syllabus for each course).
- Failure to pass a judicial record check, if required by the school or school board where the student is placed.
- Unprofessional behaviour; behaviour that contravenes the Code of Ethics for Student Teachers.
- Failure to make the improvements outlined on a Notification of Concern by the date indicated.

The final outcome for a Field Experience that is terminated will be decided by the director of Student Teaching.

Possible outcomes are:

- Reassignment during the same term, subject to availability of placements.
- "W" – Withdrawal (normally without refund).
- "D" – Student will be permitted to register for the Field Experience again during the next regularly scheduled term.
- "F, J, KF, WF" – Failure in any Field Experience places the student in Unsatisfactory Standing.

If a student cannot continue the Field Experience due to illness, see section 5.8.4.2: Withdrawal from Field Experience.

If a student chooses to end his or her Field Experience, the director of Student Teaching will evaluate the circumstances and determine an outcome. Possible outcomes are the same as those listed above.

5.8.4.2 Withdrawal from Field Experience

- Withdrawal (with refund) for any reason must be done at least two weeks before the start date of the Field Experience. The student is responsible for notifying the OST in writing by this deadline.
- Students having to withdraw for any reason, including illness, from a Field Experience that begins in less than two weeks or that is underway must immediately inform the OST. Based on the circumstances of the withdrawal, the director of the OST will determine the final outcome of the Field Experience and the Student Affairs Office will determine eligibility for refund.

5.8.4.3 Exemption and Transfer Credit

Students who have acquired formal teaching experience prior to admission to the Bachelor of Education program may be granted exemption from the first Field Experience and corequisite seminar. Written requests must be made to the Director of the OST by August 31 of the year of admission. Requirements for supporting documentation can be found on the OST website, www.mcgill.ca/ost. Exemption does not reduce the number of credits students need to graduate. Students should consult an academic adviser to discuss their plan of study.

Students who previously completed a Field Experience at another university may be eligible for transfer credit (advanced standing). Contact an academic adviser to discuss this possibility. Students may need to submit a syllabus for the course so that the OST can determine equivalency.

For general information about exemptions and transfer credits at McGill, see www.mcgill.ca/students/transfercredit, as well as Faculty-specific information at www.mcgill.ca/edu-sao/new/advancedstanding.
5.8.5 Code of Professional Conduct: Code of Ethics for Student Teachers

5.8.5.1 Preamble – A Student-Centred Perspective

- **Mandate**
  A joint subcommittee consisting of members from two standing committees of the Faculty of Education (Faculty of Education Ethical Review Board and Student Standing) was created to develop a Code of Ethics for Student Teachers and to examine the ways in which this Code will be communicated to students, faculty members, and educational partners.

- **Goals and Rationale**
  The interests of the two Standing Committees of the Faculty of Education in promoting appropriate ethical and professional conduct have led us to develop the following Code of Ethics for Student Teachers. This code seeks to respond to and address the following needs:

  1. The Code addresses the interdependent duties, rights, and responsibilities of student teachers, faculty members, and educational partners.
  2. By addressing common issues and needs, the Code seeks to articulate and make explicit ethical principles that transcend disciplinary boundaries. These principles reflect the fundamental values that are expressed in the duties, rights, and responsibilities of all involved in Teacher Education.
  3. The Code requires a reasonable flexibility in the implementation of common principles. It is designed to help those involved in Teacher Education, as a matter of sound ethical reasoning, to understand and respect the contexts in which they work and accommodate the needs of others.
  4. The Code seeks to encourage continued reflection and thoughtful response to ethical issues. It does not seek definitive answers to all ethical questions or situations. Rather, it seeks to outline the guiding principles to ethical conduct and to identify major issues that are essential to the development and implementation of this Code.

- **Context of an Ethics Framework for Student Teachers**
  The principles and norms guiding ethical conduct are developed within an ever-evolving complex societal context, elements of which include the need for reflective action and ethical principles.
  
  Education is premised on a fundamental moral commitment to advance and construct knowledge and to ensure human understanding and respect for individual and collective well-being and integrity.
  
  The moral imperative of respect translates into the following ethical principles that assume a student-centred perspective as articulated in the Quebec Curriculum Reform and Competencies outlined for Teacher Education.

5.8.5.2 Academic Freedom and Responsibilities

Teachers enjoy, and should continue to enjoy, important freedoms and privileges. However, with freedoms come responsibilities and ethical challenges. This Code of Ethics is in keeping with the philosophy and spirit of the New Directions that are embedded in the document "Teacher Training: Orientations, Professional Competencies" (MEQ 2001) and the reflective practice literature.

The role of the teacher and the contexts of teaching have changed. Thus, new resources (knowledge, skills, attitudes) are required to practice the profession and to meet the challenges of teaching and learning in whatever contexts student teachers may find themselves, and to engage in professional development individually and with others.

5.8.5.3 Ethics and Law

"Teaching is governed by a legal and regulatory framework" (MEQ 2001, p. 120). The law affects and regulates the standards and norms of teaching behaviours in a variety of ways such as respecting privacy, confidentiality, intellectual property, and competence. Human rights legislation prohibits discrimination and recognizes equal treatment as fundamental to human dignity and well being. Teachers should respect the spirit of the Canadian Charter of Rights and Freedoms, particularly the sections dealing with life, liberty, and the security of the person, as well as those involving equality and discrimination and the Education Act that sets out the obligations and rights of teachers.

5.8.5.4 Guiding Ethical Principles

Ethical student teachers should respect the following guiding ethical principles:

1. **Respect for Human Dignity**
   - Speaks and acts toward all students with respect and dignity; and deals judiciously with them at all times, always mindful of their individual rights and personal sensibilities.
   - Respects the dignity and responsibilities of cooperating teachers, peers, principals, parents, and other professionals or para-professionals within the school, school board, and community.

2. **Respect for Vulnerable Persons**
   - Respects and recognizes ethical obligations toward vulnerable persons. This principle recognizes that students are in a vulnerable position and that student teachers are in a privileged relationship with students and their families and will always refrain from exploiting that relationship in any form or manner.

3. **Respect for Confidentiality and Privacy**
• Respects the confidential nature of all information related to students and their families and will share such information in an appropriate manner only with those directly concerned with their welfare.
• Respects the confidential nature of all information related to all school personnel and will share such information in an appropriate manner.

4. Respect for Justice
• Respects and recognizes the right of individuals to be treated with fairness and equity and the importance of avoiding conflicts of interest.

5. Respect for Safety of Students
• Respects the right of individuals to expect that student teachers will engage in practices that aim to ensure the physical, psychological, and emotional safety of students.

6. Respect for Existing Ethical Codes and Professional Standards
• Respects the authority, roles, and responsibilities of the cooperating teacher, and agrees to adhere to the responsibilities and obligations for teachers as outlined in the Education Act, Faculty, and University handbooks as well as all local agreements by host school boards and schools.

7. Balancing Harm and Benefits
• Acknowledges that any potentially harmful practices (e.g., science labs and physical education activities) must be balanced with anticipated benefits and conducted in a prudent, informed manner.

5.8.5.5 Putting Principles into Practice: Venues for Communication

More than one principle may apply to a given case or situation. For meaningful and effective implementation of these principles, they must be widely communicated and applied in appropriate contexts.

5.9 Department of Educational and Counselling Psychology

5.9.1 Location

Faculty of Education
3700 McTavish Street, Room 614
Montreal, Quebec H3A 1Y2

Telephone: 514-398-4242
Fax: 514-398-6968
Website: www.mcgill.ca/edu-ecp

5.9.2 About the Department of Educational and Counselling Psychology

Educational Psychology encompasses a) the theoretical and applied study of learning, cognition, and instruction in a variety of educational settings across ages and domains; b) instructional technology and computers as cognitive tools in learning; c) cognitive and social processes in learning; d) evaluation and enhancement of learning and teaching; e) methods for fostering inclusive education; f) relationships of phenomena related to teaching, learning, and assessment in human development; and g) the impact of family and community on children’s learning and development.

At the undergraduate level, the Department of Educational and Counselling Psychology is responsible for the B.A.; see Faculty of Arts > Educational Psychology Minor Concentration for more information and for a variety of undergraduate courses in the areas of learning, cognition and development, inclusive education, gifted education, educational media and computers, and educational measurement and evaluation.

In professional development, the Department offers diploma or certificate programs in Human Relations and Family Life Education, Inclusive Education, and First Nations and Inuit Student Personnel Services. For more information, please consult our website, www.mcgill.ca/edu-ecp/undergraduate, or contact the Undergraduate Program Coordinator in Educational and Counselling Psychology:

Dean Thomson
Undergraduate Program Coordinator
Telephone: 514-398-4248
Email: dean.thomson@mcgill.ca

At the graduate level, the Department of Educational and Counselling Psychology offers Master's degrees (M.A.) in Counselling Psychology, with major concentrations in Project (Research-based) or Professional/Internship (Practitioner-based) and in Educational Psychology with streams in Health Professions Education, Human Development, Learning Sciences, and School/Applied Child Psychology. Also offered are Master's of Education degrees (M.Ed.) in Educational Psychology with streams in General Educational Psychology, Inclusive Education, and Learning Sciences. Students can also obtain doctoral degrees (Ph.D.) in Counselling Psychology, School/Applied Child Psychology, and Educational Psychology with streams in Human Development or Learning.
Sciences. The department also offers a Postdoctoral Degree Graduate Diploma in School/Applied Child Psychology and a Graduate Certificate in Counselling Applied to Teaching. For further information, consult the most current Graduate and Postdoctoral Studies Programs, Courses and University Regulations publication at www.mcgill.ca/study.

Special services offered by the Department include the School and Counselling Psychology Clinic and the International Centre for Youth Gambling and High Risk Behaviour.

5.9.3 Department of Educational and Counselling Psychology Faculty

Emeritus Professors

Mark W. Aulls; B.S.(Ball St.), M.Ed.(Ind.), Ph.D.(Georgia)
Janet G. Donald; B.A., M.A.(W. Ont.), Ph.D.(Tor.)
Carl H. Frederiksen; B.A.(Harv.), M.A., Ph.D.(Ill.)
Lynn McAlpine; B.A.(McG.), M.A.(Cdia.), Ph.D.(Tor.)
Eigil Pedersen; B.A.(Sir G. Wms.), M.A.(McG.), Ed.D.(Harv.)
Bruce M. Shore; B.Sc., M.A.(McG.), Ph.D.(Calg.)
Howard A. Stutt; B.A.(Qu.), B.Ed., M.Ed.(Montr.), F.C.C.T.

Professors

Roger Azevedo; B.A., M.A.(C'dia), Ph.D.(McG.)
Robert J. Bracewell; B.Sc., M.A.(McM.), Ph.D.(Tor.)
Jacob A. Barack; B.A.(Col.), M.S., M.Phil., Ph.D.(Yale)
Jeffrey L. Derevensky; B.A,(C. W. Post), M.A., Ph.D.(McG.) (sabbatical leave)
Nancy L. Heath; B.A.(McG.), M.Ed.(Ott.), Ph.D.(Tor.) (James McGill Professor)
Susanne P. Lajoie; B.A., M.A.(McG.), Ph.D.(Stan.) (James McGill Professor)
Alenouch Saroyan; B.A.(Pahlavi), M.Ed.(Loyola-Ill.), Ph.D.(McG.)
Cynthia B. Weston; B.A.(G'town), M.L.S.(SUNY), D.Ed.(Wash.) (joint appt. with Teaching and Learning Services)

Associate Professors

Alain Breuleux; B.Sc., M.Sc., Ph.D.(Montr.)
Martin Drapeau; B.A.(Montr.), B.A.Ps.(UQTR), M.P.(Laval), Ph.D.(Montr.)
Marilyn Fitzpatrick; B.A.(Tor.), M.Ed., Ph.D.(McG.)
Michael L. Hoover; B.S.(Tulane), M.A., M.Phil., Ph.D.(Col.)
Evelyn Lusthaus; B.S., M.S., Ph.D.(SUNY Buffalo) (on leave)
Robert Savage; B.A.(Oxf.), M.Sc.(Camb.), M.Sc., Ph.D.(Lond.) (William Dawson Scholar)
Ada L. Sinacore; B.A.(Montclair St.), M.A., M.Ed., Ph.D.(Col.)
Ingrid E. Sladeczek; B.A., M.S., Ph.D.(Ariz.), A.A.(Md.)
Lisa Spanierman; B.Sc.(Flor.), M.A., Ed.M.(Col.), Ph.D.(Missouri)
Ronald Stringer; B.Sc., M.A., Ph.D.(Tor.)
Victoria Talwar; M.A.(St. And.), M.A., Ph.D.(Qu.) (sabbatical leave)

Assistant Professors

Tara Flanagan; B.A.(Winn.), M.A., Ph.D.(McG.)
Nathan Hall; B.A., M.A., Ph.D.(Manit.)
Annett Körner; M.A., Ph.D.(Leipzig)
Krista Muis; B.A.(Wat.), M.A.(Vic., BC), Ph.D.(S. Fraser)
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<td>Steven R. Shaw; B.S., M.Ed., Ed.S., Ph.D.(Flor.)</td>
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<td>Nathan Smith; M.Sc., Ph.D.(VCU)</td>
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<td>Jack de Stefano; B.A.(Loyola), M.Ed., Ed.D.(McG.)</td>
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<td>Marcia Delcourt; B.S.(Bloomsburg St.), M.A., Ph.D.(Conn.) <em>(part-time)</em></td>
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<tr>
<th><strong>Part-time Instructors</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Shawna Atkins</td>
</tr>
<tr>
<td>Maureen Baron</td>
</tr>
<tr>
<td>Dianne Bateman</td>
</tr>
<tr>
<td>Antonio Bernardelli</td>
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<tr>
<td>Sam Bruzzese</td>
</tr>
<tr>
<td>Karen Cohen-Gazith</td>
</tr>
<tr>
<td>Scott Conrod</td>
</tr>
<tr>
<td>David Hoida</td>
</tr>
<tr>
<td>Judith Norton</td>
</tr>
</tbody>
</table>
Part-time Instructors
Monica Oala
Caroline Zanni-Dansereau

5.10 Department of Integrated Studies in Education

5.10.1 Location

Faculty of Education
3700 McTavish Street, Room 244
Montreal, Quebec H3A 1Y2

Website: www.mcgill.ca/edu-dise

Undergraduate Programs:
Telephone: 514-398-4527
Fax: 514-398-4529

Graduate and Certificate Programs:
Telephone: 514-398-7149
Fax: 514-398-4529

5.10.2 About the Department of Integrated Studies in Education

The Department of Integrated Studies in Education, created in September 2001, incorporates the programs and staff previously associated with the Departments of Culture and Values in Education, Educational Studies, Second Language Education, and First Nations and Inuit Education.

The Department offers four-year programs for CEGEP graduates and five-year programs for out-of-province students leading to a B.Ed. degree.

For B.Ed. program overviews, see www.mcgill.ca/edu-dise/students/undergraduate/new.

5.10.3 Department of Integrated Studies in Education Faculty

Chair
Steven Jordan

Director of Undergraduate Programs
Caroline Riches

Director of Graduate Programs
Michael Hoechsmann

Emeritus Professors
Patrick X. Dias; B.A., M.A.(Karachi), B.Ed., Ph.D.(Montr.)
Margaret Gillett; B.A., Dip.Ed.(Syd.), M.A.(Russel Sage), Ed.D.(Col.) (William C. Macdonald Emeritus Professor of Education)
John B. Gradwell; B.A., M.A.(Calif.), Ph.D.(Iowa)
Denise Lussier; B.A.(Coll. Jesus Marie de Sillery), M.Ed.(Boston), M.A., Ph.D.(Laval)
Jacques J. Rebuffot; B.ès L., L.ès L., D.E.S.(Aix-Marseille), Dip. I.E.P., Dr. 3rd Cy.(Strasbourg)
Bernard Shapiro; B.A.(McG.), M.A.T., Ed.D.(Harv.)
David C. Smith; B.Ed., M.A.(McG.), Ph.D.(Lond.), F.C.C.T., F.R.S.A.
Emeritus Professors
John R. Wolforth; B.Sc.(Sheff.), M.A., Ph.D.(Br. Col.)

Professors
Lynn Butler-Kisber; B.Ed., M.Ed.(McG.), Ed.D.(Harv.)
David Dillon; B.A.(St. Columban's), M.S.(SW Texas St.), Ph.D.(Texas)
Ratna Ghosh; C.M., B.A.(Calc.), M.A., Ph.D.(Calg.) F.R.S.C. (William C. Macdonald Professor of Education) (James McGill Professor)
Barry Levy; B.A., M.A., B.Ed.(Yeshiva), Ph.D.(NYU)
Roy Lyster; B.A.(Regina), M.A.(Paris VII), B.Ed., M.Ed., Ph.D.(Tor.)
Claudia A. Mitchell; B.A.(Bran.), M.A.(Mt. St. Vin.), Ph.D.(Alta.) (James McGill Professor)
Anthony Paré; B.Ed, M.Ed., Ph.D.(McG.)
Lise Winer; B.A.(Pitt.), M.A.(Minn.), Cert. Ped.(C'dia), Ph.D.(West Indies)

Associate Professors
Helen Amoriggi; B.Sc., M.A.(Rhode Is.), Ed.D.(Boston)
Jon G. Bradley; B.A., M.A.(Sir G. Wms.)
Eric Caplan; B.A.(Tor.), M.A.(Hebrew), Ph.D.(McG.)
Michael Hoechsmann; B.A., M.A.(S. Fraser), Ph.D.(Tor.)
Steven Jordan; B.A.(Kent), M.Sc.(Lond.), Ph.D.(McG.)
Bronwen Low; B.A.(Qu.), M.A.(Br. Col.), Ph.D.(York)
Kevin McDonough; B.A., B.Ed., M.Ed.(Alta.), Ph.D.(Ill.)
Ronald Morris; B.Ed., M.A., Ph.D.(McG.)
Mela Sarkar; B.A.(McG.), M.A., Ph.D.(C'dia)
Gale Seiler; B.Sc.(Fairleigh Dickinson), M.Sc.(Montana), Ph.D.(Penn.)
Shaheen Shariff; B.A., M.A., Ph.D.(S. Fraser)
Doreen Starke-Meyerring; B.Ed.(Potsdam), M.A.(N. Dakota), Ph.D.(Minn.)
Shirley Steinberg; B.Ed., M.Ed.(Leth.), Ph.D.(Penn. St.)
Georges Terroux; B.A.(Montr.), M.A.(Essex), Ph.D.(Montr.) (Post-retirement)
Carolyn E. Turner; B.A.(Ariz.), M.Ed., Ph.D.(McG.)
Boyd White; B.A.(Sir G. Wms.), B.F.A.(C'dia), M.F.A.(Inst. Allende, Guanajuato), Ph.D.(C'dia)

Assistant Professors
Anila Asghar; M.S.(Punjab), M.A.(Col.), M.Ed., Ed.D.(Harv.)
Spencer Boudreau; B.A.(Don Bosco), B.A., M.A.(Sher.), Ph.D.(C'dia)
Abdul Aziz Choudry; Grad.Dip., Ph.D.(C'dia)
Kara Jones Jackson; B.A.(Bates Col.), M.A., Ph.D.(Penn.)
Annie Savard; B.Ed., M.A., Ph.D.(Laval)
Sylvia Sklar; Dip.Ed.(McG.), B.A.(C'dia), M.Ed.(McG.)
Overview of Programs (Integrated Studies in Education)

5.10.4 The following is an overview of programs offered by the department of Integrated Studies in Education.

5.10.4.1 Bachelor of Education: Secondary Program (120 credits)

The aim of the B.Ed. Secondary program is to prepare strong beginning teachers for the secondary school level. This integrated 120-credit program (150 credits for out-of-province students) consists of academic studies to provide background depth in subjects taught in the secondary school, professional studies centred on school-based practicum, supported by studies in pedagogy, curriculum, and educational foundations. Students choose their teaching profiles from: English, Mathematics, Science and Technology, and Social Sciences (History and Citizenship, and one of Geography or Ethics and Religious Culture). Students applying to the B.Ed. Secondary in the areas of Mathematics or Science and Technology, depending on their academic record, may be required to complete additional courses in order to gain the appropriate subject area background.

5.10.4.2 Concurrent Bachelor of Music (Music Education)/Bachelor of Education in Music program (137 credits)

This program provides students with the opportunity to obtain a Bachelor of Music degree and a Bachelor of Education degree concurrently. The two degrees are awarded during the same convocation period. Students who have completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies are normally enrolled in a program requiring the completion of 137 credits.

5.10.4.3 Concurrent Bachelor of Science/Bachelor of Education (Secondary) (135 credits)

This program provides students with the opportunity to attain a Bachelor of Science degree and a Bachelor of Education degree concurrently. The two degrees are awarded during the same convocation period. Students who have completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies are normally enrolled in a program requiring the completion of 135 credits.

5.10.4.4 Bachelor of Education (Kindergarten and Elementary) (120 credits)

This program leads to certification to teach children between the ages of 5 and 11 years. It consists of four years of full-time study requiring the completion of 120 credits (150 credits or five years for out-of-province students) of academic and professional courses.

Options within the B.Ed. (Kindergarten and Elementary) program are:
- First Nations and Inuit Studies
- Jewish Studies (126 credits)
- Pédagogie de l’immersion française (pending approval to be offered 2011-2012)

5.10.4.5 Baccalauréat en enseignement du français langue seconde (120 credits) (B.Ed. TFSL)

No admissions for 2011-2012.

This four-year program (normally 120 credits or four years for students who have completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies) prepares specialist teachers to teach French as a second language, in Core French programs, immersion programs,
intensive programs, and classes d'accueil, at both the elementary and the secondary levels. Offered by the Department of Integrated Studies in Education jointly with the Université de Montréal (www.mcgill.ca/edu-dise/students/undergraduate/new/#TFSL).

5.10.4.6 Bachelor of Education in Teaching English as a Second Language (120 credits)

This program prepares specialist teachers to teach English as a second language at both the elementary level (including regular and intensive ESL) and the secondary level (including regular ESL and ESLA – English Second Language Arts). This integrated 120-credit program (150 credits for out-of-province students) consists of academic and professional components. The academic components provide students with opportunities to develop a broad liberal education and to study language and language learning from linguistic, social, cultural, and psychological perspectives. The professional components revolve around school-based Field Experiences, which are supported by studies in pedagogy and educational foundations.

5.10.4.7 Graduate Programs

At the graduate level, the Department offers M.A. programs with thesis and non-thesis options in the following areas: Education and Society, Educational Leadership, and Second Language Education.

The Department is offering a new Master of Arts in Teaching and Learning (MATL), leading to teacher certification at the secondary level for those meeting specific criteria. See www.mcgill.ca/edu-dise/prospective/matl.

The Department also offers graduate certificates in Leadership and Teaching English as a Second Language. See www.mcgill.ca/edu-dise/students/graduate.

5.10.4.8 In-Service Programs

The Department of Integrated Studies in Education offers a number of in-service programs through First Nations and Inuit Education: a Certificate in Education for First Nations and Inuit, a Certificate in Aboriginal Literacy Education, a Certificate in Middle School Education in Aboriginal Communities, a Certificate in First Nations and Inuit Educational Leadership, a Certificate in Aboriginal Education for Certified Teachers, and a Bachelor of Education for Certified Teachers.

The Department is also involved in a variety of in-service activities with administrators, teachers, consultants, and other educational leaders through the Centre for Educational Leadership (CEL).

5.10.5 Bachelor of Education (B.Ed.) - Secondary English (120 credits)

The Bachelor of Education (B.Ed.) - Secondary English program requires 120 credits and leads to teacher certification. Students who have not completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies prior to commencing the B.Ed. must also complete a minimum of 30 credits of Freshman courses (in addition to the 120 credits for the program) for a total of 150 credits.

The aim of the B.Ed. Secondary Education Program is to prepare strong beginning teachers for the secondary school level. This integrated program consists of academic studies, professional studies, and school-based practicum components. All of this is supported by studies in pedagogy, curriculum, and educational foundations.

The Secondary English program provides students with the learning opportunities needed to become proficient English teachers.

Please note that graduates of teacher education programs are recommended by the University for Quebec certification to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS). For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

Freshman Program

Students normally complete 30 credits in their Freshman (U0) year.

The Freshman year is the time to take introductory level courses in English, as well as to explore areas that are not normally taken as teachable subject areas within B.Ed. programs (e.g., Sociology, Psychology, Political Science, etc.). Students should also investigate the possibility of taking one of the First Year Seminar courses offered by the Faculty of Arts or the Faculty of Science.

In addition, in consultation with the Program Adviser, students may select courses from the recommended course list below or other courses. The list includes English literature courses that may be used toward the academic component of the Secondary English course requirements. Also included are several French Second Language (FRSL) courses for which placement tests are required to determine the appropriate level.

CEAP 250* (3) Research Essay & Rhetoric
EDEC 203* (3) Communication in Education
EDEM 220 (3) Contemporary Issues in Education
ENGL 201 (3) Survey of English Literature 2
ENGL 215 (3) Introduction to Shakespeare
ENGL 226 (3) American Literature 2
FRSL 101D1 (3) Beginners' French
FRSL 101D2 (3) Beginners' French
FRSL 207D1 (3) Elementary French 01
Required Courses (45 credits)

- EDEC 201 (1) First Year Professional Seminar
- EDEC 215 (0) English Language Requirement
- EDEC 247 (3) Policy Issues in Quebec Education
- EDEC 254 (1) Second Professional Seminar (Secondary)
- EDEC 351 (2) Third Professional Seminar (Secondary)
- EDEC 404 (3) Fourth Year Professional Seminar (Sec)
- EDES 350 (3) Classroom Practices (Secondary)
- EDFE 200 (2) First Field Experience (K/Elem & Secondary)
- EDFE 254 (3) Second Field Experience (Secondary)
- EDFE 351 (8) Third Field Experience (Secondary)
- EDFE 451 (7) Fourth Field Experience (Secondary)
- EDPE 300 (3) Educational Psychology
- EDPE 304 (3) Measurement and Evaluation
- EDPI 309 (3) Exceptional Students
- EDPI 341 (3) Instruction in Inclusive Schools

Complementary Courses (15 credits)

15 credits selected as described below.

Multicultural Education

3 credits from:
- EDEC 233 (3) First Nations and Inuit Education
- EDEC 248 (3) Multicultural Education
- EDEC 249 (3) Global Education and Social Justice

Philosophy of Education

3 credits from:
- EDEC 260 (3) Philosophical Foundations
- EDEC 261 (3) Philosophy of Catholic Education

Media, Technology, Computers and Education

3 credits from:
- EDEC 262 (3) Media, Technology and Education
- EDPT 200 (3) Integrating Educational Technology in Classrooms
- EDPT 204 (3) Educational Media 1
For students with a background in computers or other media applications in education, the following courses may be substituted for the above:

EDPT 341  (3)  Instructional Programming 1
EDPT 420  (3)  Media Literacy for Education

**Secondary Teaching Methods - English**

6 credits:

EDES 361  (3)  Teaching Secondary English 1
EDES 461  (3)  Teaching Secondary English 2

**Secondary English Subject Area (54 credits)**

Note: Students selecting 18 credits of English as their second ‘teachable subject’ will take EDES 361 Teaching Secondary English 1 (3 credits) to count as an elective in their program.

**Option 1**

54 credits distributed as follows:

**Required Course (3 credits)**

EDES 366  (3)  Literature for Young Adults

**Complementary ‘Language/Linguistics’ courses (6 credits)**

CEAP 250*  (3)  Research Essay & Rhetoric
EDEC 203*  (3)  Communication in Education
EDSL 305  (3)  L2 Learning: Classroom Settings
EDSL 350  (3)  Essentials of English Grammar
LING 200  (3)  Introduction to the Study of Language
LING 201  (3)  Introduction to Linguistics
LING 355  (3)  Language Acquisition 1

*Note: Students may take either CEAP 250 OR EDEC 203 for credit but not both

**Complementary Courses**

45 credits selected from the English Department undergraduate complementary course list (www.mcgill.ca/english/undergrad/complimentary-courses/) distributed as follows (including at least one course in Shakespeare):

**Literature (33 credits)**

A minimum of 15 credits must be at the 300 level or higher

**Cultural Studies (9 credits)**

At least 3 credits must be at the 300 level or higher

**Drama/Theatre (3 credits)**

**Option 2 (54 credits)**

54 credits distributed as follows:

**Required Course (3 credits)**

EDES 366  (3)  Literature for Young Adults
Complementary ‘Language/Linguistics’ courses. (6 credits)

Select 6 credits from the following course list:

- CEAP 250* (3) Research Essay & Rhetoric
- EDEC 203* (3) Communication in Education
- EDSL 305 (3) L2 Learning: Classroom Settings
- EDSL 350 (3) Essentials of English Grammar
- LING 200 (3) Introduction to the Study of Language
- LING 201 (3) Introduction to Linguistics
- LING 355 (3) Language Acquisition 1

*Note: Students may take either CEAP 250 OR EDEC 203 for credit but not both

Complementary Courses

27 credits selected from the English Department undergraduate complementary course list (www.mcgill.ca/english/undergrad/complimentary-courses/), distributed as follows (including at least one course in Shakespeare):

Literature (18 credits)
A minimum of 6 credits at the 300 level or higher.

Cultural Studies (6 credits)
A minimum of 3 credits at the 300 level or higher

Drama/Theatre (3 credits)

Second “Teachable” Subject Area (18 credits)
18 credits of designated courses in a second “teachable” subject area (e.g., Mathematics, Social Sciences, Science courses, selected in consultation with an advisor).

Students must also take the corresponding 3 credits of Secondary Teaching Methods in for the second “teachable” subject area.

Note: this additional methods course counts as a 3 credit elective in the program.

English as Second “Teachable” Subject Area (18 credits)
Students in the Secondary Mathematics program who select English as their second “teachable” subject area follow the requirements below:

Required Course (3 credits)
- EDES 366 (3) Literature for Young Adults

Language Course (3 credits)
- CEAP 250* (3) Research Essay & Rhetoric
- EDEC 203* (3) Communication in Education
- EDSL 305 (3) L2 Learning: Classroom Settings
- EDSL 350 (3) Essentials of English Grammar
- LING 200 (3) Introduction to the Study of Language
- LING 201 (3) Introduction to Linguistics
- LING 355 (3) Language Acquisition 1

Note: students may select either EDEC 203 or CEAP 250

Complementary Courses (12 credits)
12 credits selected from the English Department undergraduate complementary course list (www.mcgill.ca/english/undergrad/complimentary-courses/). A minimum of 6 credits at the 300 level or higher

**Literature (6 credits)**

**Cultural Studies (3 credits)**

**Drama/Theatre (3 credits)**

### 5.10.6 Bachelor of Education (B.Ed.) – Secondary Mathematics (120 credits)

**Revision, August 2011. Start of revision.**

The Bachelor of Education (B.Ed.) – Secondary Mathematics program requires 120 credits and leads to teacher certification. Students who have not completed Quebec CEGEP, French Baccalauréate, International Baccalauréate, or at least one year of university studies prior to commencing the B.Ed. must also complete a minimum of 30 credits of Freshman courses (in addition to the 120 credits for the program) for a total of 150 credits.

The aim of the B.Ed. Secondary Education program is to prepare strong beginning teachers for the secondary school level. This integrated program consists of academic studies, professional studies, and school-based practicum components. All of this is supported by studies in pedagogy, curriculum, and educational foundations.

The Secondary Mathematics program provides students with the learning opportunities needed to become proficient Mathematics teachers. Please note that graduates of teacher education programs are recommended by the University for Quebec certification to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS). For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

**Freshman Program**

Students normally complete 30 credits in their Freshman (U0) year.

The Freshman year is the time to take introductory-level courses in Mathematics, as well as to explore areas that are not normally taken as teachable subject areas within B.Ed. programs (e.g., Sociology, Psychology, Political Science, etc.). Students should also investigate the possibility of taking one of the First Year Seminar courses offered by the Faculty of Arts or the Faculty of Science.

Students in the Secondary Mathematics program must complete three Math prerequisite courses in their Freshman year, MATH 133, MATH 140, and MATH 141.

In addition, students select courses from the recommended list below or other courses in consultation with the Program Adviser. The French Second Language (FRSL) courses suggested require a placement test to determine the appropriate course level.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>CEAP 250</td>
<td>3</td>
<td>Research Essay &amp; Rhetoric</td>
</tr>
<tr>
<td>EDEM 220</td>
<td>3</td>
<td>Contemporary Issues in Education</td>
</tr>
<tr>
<td>FRSL 101D1</td>
<td>3</td>
<td>Beginners' French</td>
</tr>
<tr>
<td>FRSL 101D2</td>
<td>3</td>
<td>Beginners' French</td>
</tr>
<tr>
<td>FRSL 207D1</td>
<td>3</td>
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<td>FRSL 207D2</td>
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<td>Oral and Written French 1</td>
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<td>Oral and Written French 1</td>
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<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
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<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
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<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
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<td>RELG 204</td>
<td>3</td>
<td>Judaism, Christianity and Islam</td>
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<tr>
<td>RELG 207</td>
<td>3</td>
<td>The Study of World Religions 1</td>
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**Required Courses (45 credits)**

<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>EDEC 201</td>
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<td>First Year Professional Seminar</td>
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<tr>
<td>EDEC 215</td>
<td>0</td>
<td>English Language Requirement</td>
</tr>
<tr>
<td>EDEC 247</td>
<td>3</td>
<td>Policy Issues in Quebec Education</td>
</tr>
<tr>
<td>EDEC 254</td>
<td>1</td>
<td>Second Professional Seminar (Secondary)</td>
</tr>
</tbody>
</table>
Third Professional Seminar (Secondary) (EDEC 351) (2 credits)
Fourth Year Professional Seminar (Secondary) (EDEC 404) (3 credits)
Classroom Practices (Secondary) (EDES 350) (3 credits)
First Field Experience (K/Elem & Secondary) (EDFE 200) (2 credits)
Second Field Experience (Secondary) (EDFE 254) (3 credits)
Third Field Experience (Secondary) (EDFE 351) (8 credits)
Fourth Field Experience (Secondary) (EDFE 451) (7 credits)
Educational Psychology (EDPE 300) (3 credits)
Measurement and Evaluation (EDPE 304) (3 credits)
Exceptional Students (EDPI 309) (3 credits)
Instruction in Inclusive Schools (EDPI 341) (3 credits)

Complementary Courses (15 credits)
15 credits selected as described below.

Multicultural Education
3 credits from:
- First Nations and Inuit Education (EDEC 233) (3 credits)
- Multicultural Education (EDEC 248) (3 credits)
- Global Education and Social Justice (EDEC 249) (3 credits)

Philosophy of Education
3 credits from:
- Philosophical Foundations (EDEC 260) (3 credits)
- Philosophy of Catholic Education (EDEC 261) (3 credits)

Media, Technology, Computers, and Education
3 credits from:
- Media, Technology and Education (EDEC 262) (3 credits)
- Integrating Educational Technology in Classrooms (EDPT 200) (3 credits)
- Educational Media 1 (EDPT 204) (3 credits)

For students with a background in computers or other media applications in education, the following courses may be substituted for the above:
- Instructional Programming 1 (EDPT 341) (3 credits)
- Media Literacy for Education (EDPT 420) (3 credits)

Secondary Teaching Methods - Mathematics
6 credits:
Note: Students selecting 18 credits of Secondary Mathematics courses as their other “teachable” subject will take 3 credits of Mathematics Secondary Teaching Methods courses to count as an elective in their program.
- Teaching Secondary Mathematics 1 (EDES 353) (3 credits)
- Teaching Secondary Mathematics 2 (EDES 453) (3 credits)
Secondary Mathematics Subject Area (54 credits)
Secondary Mathematics students complete 54 credits selected in consultation with the Program Adviser in one of two options. They are expected to have completed the prerequisite courses MATH 133, MATH 140, and MATH 141 or their equivalents. Freshman students will take them as part of their Freshman program.

Students entering from CEGEP should only choose this program if they have a strong background in their CEGEP Mathematics courses. The 100-level prerequisite courses (MATH 133, MATH 140, and MATH 141) are considered CEGEP level and only students entering a five-year program (out-of-province and directly from high school) are eligible to take them. Students entering with Advanced Standing without having completed these prerequisites will be required to make up any deficiencies in these courses over and above the degree requirements.

Option 1
27 credits from the list of "Required Mathematics Courses" and 27 credits from the list of "Complementary Mathematics Courses"

Or

Option 2:
27 credits from the list of "Required Mathematics Courses" and
9 credits from the list of "Complementary Mathematics Courses"

And
18 credits of designated courses in another "teachable" subject area (English, Social Sciences, or Science and Technology - see these Secondary Education programs for courses)

Students must also take:
3 credits of Secondary Teaching Methods for the teachable subject area
(Note: This additional Methods course counts as a 3-credit elective in the program.)
Students in the English Secondary Profile who select Mathematics as their other "teachable subject area" take:
18 credits from the list of "Mathematics Courses for Other Secondary Subject Areas"
And
3 credits of "Secondary Teaching Methods - Mathematics"
(Note: This additional Methods course counts as a 3-credit elective in the program.)

Required Mathematics Courses
27 credits for Secondary Mathematics Option 1 and Option 2 students
Note: Students with Mathematics as their "other teachable subject area" select from the list of "Mathematics Courses for Students in Other Secondary Subject Areas".

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
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<tbody>
<tr>
<td>MATH 222</td>
<td>(3)</td>
<td>Calculus 3</td>
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<td>MATH 223</td>
<td>(3)</td>
<td>Linear Algebra</td>
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<tr>
<td>MATH 235</td>
<td>(3)</td>
<td>Algebra 1</td>
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<tr>
<td>MATH 242</td>
<td>(3)</td>
<td>Analysis 1</td>
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<tr>
<td>MATH 315</td>
<td>(3)</td>
<td>Ordinary Differential Equations</td>
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<td>MATH 323</td>
<td>(3)</td>
<td>Probability</td>
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<td>MATH 324</td>
<td>(3)</td>
<td>Statistics</td>
</tr>
<tr>
<td>MATH 338</td>
<td>(3)</td>
<td>History and Philosophy of Mathematics</td>
</tr>
<tr>
<td>MATH 348</td>
<td>(3)</td>
<td>Topics in Geometry</td>
</tr>
</tbody>
</table>

Complementary Mathematics Courses
27 credits from the list below for Secondary Mathematics Option 1 students or
9 credits from the list below for Secondary Mathematics Option 2 students
Note: Students with Mathematics as their "other teachable subject area" select from the list of "Mathematics Courses for Students in Other Secondary Subject Areas".

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 202</td>
<td>(3)</td>
<td>Introduction to Computing 1</td>
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</table>
### Mathematics Courses for Students in Other Secondary Subject Areas

Students in other secondary subject areas selecting Mathematics as their "other teachable subject area" take the following 18 credits.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
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<td>MATH 348</td>
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#### Electives (6 credits)

6 credits of electives

Note: Students who have chosen to do 36 credits in one teachable subject and 18 credits in another will use 3 credits of electives to take the Secondary Teaching Methods course needed for their second teachable subject.

**Revision, August 2011. End of revision.**

### 5.10.7 Bachelor of Education (B.Ed.) – Secondary Social Sciences – History and Citizenship, Ethics and Religious Culture (120 credits)

**Revision, August 2011. Start of revision.**

The Bachelor of Education (B.Ed.) - Secondary Social Sciences - History and Citizenship, Ethics and Religious Culture program requires 120 credits and leads to teacher certification. Students who have not completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies prior to commencing the B.Ed. must also complete a minimum of 30 credits of Freshman courses (in addition to the 120 credits for the program) for a total of 150 credits.

The aim of the B.Ed. Secondary Education Program is to prepare strong beginning teachers for the secondary school level. This integrated program consists of academic studies, professional studies, and school-based practicum components. All of this is supported by studies in pedagogy, curriculum, and educational foundations.
The Secondary Social Sciences - History and Citizenship, Ethics and Religious Culture program provides students with the learning opportunities needed to become proficient Social Science teachers with a strong knowledge base in the associated disciplinary areas.

Please note that graduates of teacher education programs are recommended by the University for Quebec certification to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS). For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

**Freshman Program**

Students normally complete 30 credits in their Freshman (U0) year.

The Freshman year is the time to take introductory-level courses in a teachable subject area, as well as to explore areas that are not normally taken as within B.Ed. programs (e.g., Sociology, Psychology, Political Science, etc.). Students should also investigate the possibility of taking one of the First Year Seminar courses offered by the Faculty of Arts or the Faculty of Science.

In addition, in consultation with the Program Adviser, students may select courses from the recommended course list below or other courses. The list includes History, Geography, and Religious Studies courses that may be used toward the academic component of the Secondary Social Sciences course requirements. Also included are several French Second Language (FRSL) courses for which placement tests are required to determine the appropriate level.

<table>
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<tr>
<th>Course Code</th>
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<tr>
<td>CEAP 250</td>
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<td>Research Essay &amp; Rhetoric</td>
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<td>EDEM 220</td>
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<td>Contemporary Issues in Education</td>
</tr>
<tr>
<td>FRSL 101D1</td>
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<td>GEOG 200</td>
<td>3</td>
<td>Geographical Perspectives: World Environmental Problems</td>
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<td>GEOG 205</td>
<td>3</td>
<td>Global Change: Past, Present and Future</td>
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<td>GEOG 210</td>
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**Required Courses (45 credits)**

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<td>EDES 350</td>
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<td>Fourth Field Experience (Secondary)</td>
</tr>
<tr>
<td>EDPE 300</td>
<td>3</td>
<td>Educational Psychology</td>
</tr>
</tbody>
</table>
EDPE 304 (3) Measurement and Evaluation
EDPI 309 (3) Exceptional Students
EDPI 341 (3) Instruction in Inclusive Schools

**Complementary Courses (15 credits)**
15 credits selected as described below.

**Multicultural Education**
3 credits from:
- EDEC 233 (3) First Nations and Inuit Education
- EDEC 248 (3) Multicultural Education
- EDEC 249 (3) Global Education and Social Justice

**Philosophy of Education**
3 credits from:
- EDEC 260 (3) Philosophical Foundations
- EDEC 261 (3) Philosophy of Catholic Education

**Media, Technology, Computers, and Education**
3 credits from:
- EDEC 262 (3) Media, Technology and Education
- EDPT 200 (3) Integrating Educational Technology in Classrooms
- EDPT 204 (3) Educational Media 1

For students with a background in computers or other media applications in education, the following courses may be substituted for the above:

- EDPT 341 (3) Instructional Programming 1
- EDPT 420 (3) Media Literacy for Education

**Secondary Teaching Methods - Social Sciences**
6 credits:
- EDER 372 (3) Ethics and Religious Culture (Secondary)
- EDES 334 (3) Teaching Secondary Social Studies 1

**Secondary Social Sciences - History & Citizenship, Ethics & Religious Culture Subject Area (54 credits)**
Secondary Social Sciences - History and Citizenship, Ethics and Religious Culture students complete 54 credits selected in consultation with the Program Adviser with the following specifications:
36 credits of History and Citizenship courses distributed as follows:
- 9 credits of "Required History" courses
and
27 credits "Complementary History" distributed as follows:
- 3-9 credits in European History
- 3-9 credits in Asian, African, American, Latin American, or Ancient History
9 credits at the 300 or 400 level of history courses on social history, gender history, identity, culture, religion and values, political life and institutions, conflict, wealth and poverty, science, and health

(Students may consult the course lists for History programs offered by the Faculty of Arts for guidance on course choices.)

And

18 credits chosen from the Ethics and Religious Culture course list as specified below.

Required History

9 credits:

- HIST 202 (3) Survey: Canada to 1867
- HIST 203 (3) Survey: Canada since 1867
- HIST 303* (3) History of Quebec
- HIST 353* (3) History of Montreal

* Note: Students select either HIST 303 or HIST 353.

Complementary Courses

6-12 credits selected from the following list. Students must select a minimum of 3 credits ECON and a minimum of 3 credits POLI:

- ANTH 338 (3) Native Peoples of North America
- CANS 200 (3) Introduction to the Study of Canada
- ECON 199 (3) FYS: Aspects of Globalization
- ECON 205 (3) An Introduction to Political Economy
- ECON 208 (3) Microeconomic Analysis and Applications
- ECON 209 (3) Macroeconomic Analysis and Applications
- ECON 221 (3) Economic History
- ECON 219 (3) Current Economic Problems: Topics
- ECON 313 (3) Economic Development 1
- ECON 326 (3) Ecological Economics
- ECON 341 (3) Economic History of a World Area
- ECON 347 (3) Economics of Climate Change
- ENVR 201 (3) Society, Environment and Sustainability
- ENVR 203 (3) Knowledge, Ethics and Environment
- POLI 211 (3) Comparative Government and Politics
- POLI 212 (3) Government and Politics - Developed World
- POLI 221 (3) Government of Canada
- POLI 222 (3) Political Process and Behaviour in Canada
- POLI 227 (3) Developing Areas/Introduction
- POLI 243 (3) International Politics of Economic Relations
- POLI 244 (3) International Politics: State Behaviour
- POLI 341 (3) Foreign Policy: The Middle East
- POLI 345 (3) International Organizations
- POLI 354 (3) Approaches to International Political Economy
- POLI 360 (3) Security: War and Peace
- POLI 362 (3) Political Theory and International Relations
- POLI 423 (3) Politics of Ethno-Nationalism
- POLI 435 (3) Identity and Inequality
POLI 442  (3)  International Relations of Ethnic Conflict
POLI 450  (3)  Peacebuilding
POLI 474  (3)  Inequality and Development

**Ethics and Religious Culture**

18 credits as specified below.

6 credits from:

* Note: Either EDER 309 or RELG 204 may be selected, but not both.

- EDER 309*  (3)  The Religious Quest
- RELG 204*  (3)  Judaism, Christianity and Islam
- RELG 207  (3)  The Study of World Religions 1
- RELG 252  (3)  Hinduism and Buddhism

6 credits from:

- EDER 209  (3)  Search for Authenticity
- EDER 395  (3)  Moral Values and Human Action
- EDER 461  (3)  Society and Change
- EDER 473  (3)  Living with Insight
- EDER 494  (3)  Ethics in Practice
- PHIL 230  (3)  Introduction to Moral Philosophy 1
- PHIL 237  (3)  Contemporary Moral Issues

6 credits from:

- CATH 200  (3)  Introduction to Catholicism
- EDER 252  (3)  Understanding and Teaching Jewish Life
- EDER 290  (3)  Guide to Reading the Bible
- EDER 319  (3)  Teaching the Holocaust
- EDER 394  (3)  Philosophy of God
- RELG 270  (3)  Religious Ethics and the Environment

**Electives (6 credits)**

6 credits

Revision, August 2011. End of revision.

5.10.8  **Bachelor of Education (B.Ed.) – Secondary Social Sciences – History and Citizenship, Geography (120 credits)**

Revision, August 2011. Start of revision.

Bachelor of Education (B.Ed.) - Secondary Social Sciences - History and Citizenship, Geography program requires 120 credits and leads to teacher certification. Students who have not completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies prior to commencing the B.Ed. must also complete a minimum of 30 credits of Freshman courses (in addition to the 120 credits for the program) for a total of 150 credits.

The aim of the B.Ed. Secondary Education Program is to prepare strong beginning teachers for the secondary school level. This integrated program consists of academic studies, professional studies, and school-based practicum components. All of this is supported by studies in pedagogy, curriculum, and educational foundations.
The Secondary Social Sciences - History and Citizenship, Geography program provides students with the learning opportunities needed to become proficient Social Science teachers with a strong knowledge base in the associated disciplinary areas.

Please note that graduates of teacher education programs are recommended by the University for Quebec certification to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS). For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

**Freshman Program**

Students normally complete 30 credits in their Freshman (U0) year.

The Freshman year is the time to take introductory-level courses in a teachable subject area, as well as to explore areas that are not normally taken within B.Ed. programs (e.g., Sociology, Psychology, Political Science, etc.). Students should also investigate the possibility of taking one of the First Year Seminar courses offered by the Faculty of Arts or the Faculty of Science.

In addition, in consultation with the Program Adviser, students may select courses from the recommended course list below or other courses. The list includes History, Geography, and Religious Studies courses that may be used toward the academic component of the Secondary Social Sciences course requirements. Also included are several French Second Language (FRSL) courses for which placement tests are required to determine the appropriate level.

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<th>Course Code</th>
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**Required Courses (45 credits)**

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<td>EDPI 341</td>
<td>(3)</td>
<td>Instruction in Inclusive Schools</td>
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### Complementary Courses (15 credits)

15 credits selected as described below.

#### Multicultural Education

3 credits from:

<table>
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<th>Course Code</th>
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#### Philosophy of Education

3 credits from:

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<td>EDEC 261</td>
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<td>Philosophy of Catholic Education</td>
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#### Media, Technology, Computers, and Education

3 credits from:

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<th>Credits</th>
<th>Course Title</th>
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<td>EDPT 200</td>
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<td>EDPT 204</td>
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For students with a background in computers or other media applications in education, the following courses may be substituted for the above:

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<td>EDPT 420</td>
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### Secondary Teaching Methods - Social Sciences

6 credits:

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<td>EDES 434</td>
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### Secondary Social Sciences - History and Citizenship, Geography Subject Area (54 credits)

Secondary Social Sciences - History and Citizenship, Geography students complete 54 credits selected in consultation with the Program Adviser with the following specifications:

- 36 credits of History and Citizenship courses
- 9 credits of “Required History” courses from the list and
- 27 credits “Complementary History” distributed as follows:
  - 3-9 credits in European History
  - 3-9 credits in Asian, African, American, Latin American, or Ancient History
9 credits at the 300 or 400 level of history courses on social history, gender history, identity, culture, religion and values, political life and institutions, conflict, wealth and poverty, science, and health

(Students may consult the course lists for History programs offered by the Faculty of Arts for guidance on course choices.)

and

18 credits of Geography chosen from the “Geography” course list or chosen from the courses that comprise the B.A. Minor Concentration Geography program.

**Required History**

9 credits selected from:

<table>
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<tr>
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<td>HIST 353*</td>
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* Note: Students select either HIST 303 or HIST 353.

**Complementary Courses**

6-12 credits selected from the following list. Students must choose a minimum of 3 credits of ECON and a minimum of 3 credits of POLI.

<table>
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<th>Course</th>
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<td>Current Economic Problems: Topics</td>
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<td>Economic History of a World Area</td>
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</tr>
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<td>Society, Environment and Sustainability</td>
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<td>Comparative Government and Politics</td>
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<tr>
<td>POLI 212</td>
<td>(3)</td>
<td>Government and Politics - Developed World</td>
</tr>
<tr>
<td>POLI 221</td>
<td>(3)</td>
<td>Government of Canada</td>
</tr>
<tr>
<td>POLI 222</td>
<td>(3)</td>
<td>Political Process and Behaviour in Canada</td>
</tr>
<tr>
<td>POLI 227</td>
<td>(3)</td>
<td>Developing Areas/Introduction</td>
</tr>
<tr>
<td>POLI 243</td>
<td>(3)</td>
<td>International Politics of Economic Relations</td>
</tr>
<tr>
<td>POLI 244</td>
<td>(3)</td>
<td>International Politics: State Behaviour</td>
</tr>
<tr>
<td>POLI 341</td>
<td>(3)</td>
<td>Foreign Policy: The Middle East</td>
</tr>
<tr>
<td>POLI 345</td>
<td>(3)</td>
<td>International Organizations</td>
</tr>
<tr>
<td>POLI 354</td>
<td>(3)</td>
<td>Approaches to International Political Economy</td>
</tr>
<tr>
<td>POLI 360</td>
<td>(3)</td>
<td>Security: War and Peace</td>
</tr>
<tr>
<td>POLI 362</td>
<td>(3)</td>
<td>Political Theory and International Relations</td>
</tr>
<tr>
<td>POLI 423</td>
<td>(3)</td>
<td>Politics of Ethno-Nationalism</td>
</tr>
<tr>
<td>POLI 435</td>
<td>(3)</td>
<td>Identity and Inequality</td>
</tr>
</tbody>
</table>
POLI 442 (3) International Relations of Ethnic Conflict
POLI 450 (3) Peacebuilding
POLI 474 (3) Inequality and Development

Geography
18 credits from:
- ENVR 202 (3) The Evolving Earth
- GEOG 200 (3) Geographical Perspectives: World Environmental Problems
- GEOG 205 (3) Global Change: Past, Present and Future
- GEOG 210 (3) Global Places and Peoples
- GEOG 216 (3) Geography of the World Economy
- GEOG 217 (3) Cities in the Modern World
- GEOG 272 (3) Earth's Changing Surface
- GEOG 301 (3) Geography of Nunavut
- GEOG 309 (3) Geography of Canada
- GEOG 311 (3) Economic Geography
- GEOG 331 (3) Urban Social Geography

Note: In consultation with the Program Adviser, students may choose their Geography courses from those that comprise the B.A. Minor Concentration Geography program.

Electives (6 credits)
6 credits

Revision, August 2011. End of revision.

5.10.9 Bachelor of Education (B.Ed.) - Secondary Science and Technology (120 credits)

The Bachelor of Education (B.Ed.) - Secondary Science and Technology program requires 120 credits and leads to teacher certification. Students who have not completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies prior to commencing the B.Ed. must also complete a minimum of 30 credits of Freshman courses (in addition to the 120 credits for the program) for a total of 150 credits.

The aim of the B.Ed. Secondary Education program is to prepare strong beginning teachers for the secondary school level. This integrated program consists of academic studies, professional studies, and school-based practicum components. All of this is supported by studies in pedagogy, curriculum, and educational foundations.

The Secondary Science and Technology program provides students with the subject matter expertise in the Living World, Earth and Space, the Material World, and the Technological World needed to teach the secondary science curriculum in Quebec schools.

Please note that graduates of teacher education programs are recommended by the University for Quebec certification to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS). For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

Freshman Program - Basic Sciences

Students who start their Education program in U0 normally complete 30 credits in their Freshman year.

Freshmen in the Science and Technology program must complete the 29 to 30 credits of Basic Science courses listed below in their first year of studies.

Fall term: BIOL 111, CHEM 110, MATH 139 or MATH 140 or MATH 150, PHYS 101 or PHYS 131
Winter term: BIOL 112, CHEM 120, MATH 141 or MATH 151, PHYS 102 or PHYS 142

Students should consult a program adviser for guidance on which fall and winter term Math and Physics courses should be taken. Course choices depend on a student's background in science and plans for upper-level Physics courses.

- BIOL 111 (3) Principles: Organismal Biology
- BIOL 112 (3) Cell and Molecular Biology
- CHEM 110 (4) General Chemistry 1
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 120</td>
<td>4</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>MATH 139</td>
<td>4</td>
<td>Calculus 1 with Precalculus</td>
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<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>MATH 150</td>
<td>4</td>
<td>Calculus A</td>
</tr>
<tr>
<td>MATH 151</td>
<td>4</td>
<td>Calculus B</td>
</tr>
<tr>
<td>PHYS 101</td>
<td>4</td>
<td>Introductory Physics - Mechanics</td>
</tr>
<tr>
<td>PHYS 102</td>
<td>4</td>
<td>Introductory Physics - Electromagnetism</td>
</tr>
<tr>
<td>PHYS 131</td>
<td>4</td>
<td>Mechanics and Waves</td>
</tr>
<tr>
<td>PHYS 142</td>
<td>4</td>
<td>Electromagnetism and Optics</td>
</tr>
</tbody>
</table>

**Freshman Program - Complementary**

For Freshman students with advanced standing in one or more of the basic sciences, the Faculty also recommends some of the courses listed below. French Second Language (FRSL) courses require a placement test to determine the course level.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEAP 250</td>
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<td>Research Essay &amp; Rhetoric</td>
</tr>
<tr>
<td>EDDEM 220</td>
<td>3</td>
<td>Contemporary Issues in Education</td>
</tr>
<tr>
<td>FRSL 101D1</td>
<td>3</td>
<td>Beginners' French</td>
</tr>
<tr>
<td>FRSL 101D2</td>
<td>3</td>
<td>Beginners' French</td>
</tr>
<tr>
<td>FRSL 207D1</td>
<td>3</td>
<td>Elementary French 01</td>
</tr>
<tr>
<td>FRSL 207D2</td>
<td>3</td>
<td>Elementary French 01</td>
</tr>
<tr>
<td>FRSL 211D1</td>
<td>3</td>
<td>Oral and Written French 1</td>
</tr>
<tr>
<td>FRSL 211D2</td>
<td>3</td>
<td>Oral and Written French 1</td>
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**Required Courses (45 credits)**

<table>
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<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tr>
<td>EDEC 201</td>
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<td>First Year Professional Seminar</td>
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<tr>
<td>EDEC 215</td>
<td>0</td>
<td>English Language Requirement</td>
</tr>
<tr>
<td>EDEC 247</td>
<td>3</td>
<td>Policy Issues in Quebec Education</td>
</tr>
<tr>
<td>EDEC 254</td>
<td>1</td>
<td>Second Professional Seminar (Secondary)</td>
</tr>
<tr>
<td>EDEC 351</td>
<td>2</td>
<td>Third Professional Seminar (Secondary)</td>
</tr>
<tr>
<td>EDEC 404</td>
<td>3</td>
<td>Fourth Year Professional Seminar (Sec)</td>
</tr>
<tr>
<td>EDES 350</td>
<td>3</td>
<td>Classroom Practices (Secondary)</td>
</tr>
<tr>
<td>EDFE 200</td>
<td>2</td>
<td>First Field Experience (K/Elem &amp; Secondary)</td>
</tr>
<tr>
<td>EDFE 254</td>
<td>3</td>
<td>Second Field Experience (Secondary)</td>
</tr>
<tr>
<td>EDFE 351</td>
<td>8</td>
<td>Third Field Experience (Secondary)</td>
</tr>
<tr>
<td>EDFE 451</td>
<td>7</td>
<td>Fourth Field Experience (Secondary)</td>
</tr>
<tr>
<td>EDPE 300</td>
<td>3</td>
<td>Educational Psychology</td>
</tr>
<tr>
<td>EDPE 304</td>
<td>3</td>
<td>Measurement and Evaluation</td>
</tr>
<tr>
<td>EDPI 309</td>
<td>3</td>
<td>Exceptional Students</td>
</tr>
<tr>
<td>EDPI 341</td>
<td>3</td>
<td>Instruction in Inclusive Schools</td>
</tr>
</tbody>
</table>

**Complementary Courses (15 credits)**

15 credits selected as described below.
Multicultural Education
3 credits from:
- EDEC 233 (3) First Nations and Inuit Education
- EDEC 248 (3) Multicultural Education
- EDEC 249 (3) Global Education and Social Justice

Philosophy of Education
3 credits from:
- EDEC 260 (3) Philosophical Foundations
- EDEC 261 (3) Philosophy of Catholic Education

Media, Technology, Computers and Education
3 credits from:
- EDEC 262 (3) Media, Technology and Education
- EDPT 200 (3) Integrating Educational Technology in Classrooms
- EDPT 204 (3) Educational Media 1

For students with a background in computers or other media applications in education, the following courses may be substituted for the above:
- EDPT 341 (3) Instructional Programming 1
- EDPT 420 (3) Media Literacy for Education

Secondary Teaching Methods - Science and Technology
6 credits
- EDES 335 (3) Teaching Secondary Science 1
- EDES 435 (3) Teaching Secondary Science 2

Secondary Science and Technology (54 credits)
54 credits in designated science courses selected to provide subject matter expertise in the four areas of:
- the Material World
- Earth and Space
- the Living World
- the Technological World

Note: Students entering this program from CEGEP should have completed the basic science equivalents in CEGEP. The 100-level basic sciences are considered CEGEP level and only students entering a five-year program (out-of-province and directly from high school) are eligible to take them. Students entering with advanced standing without having completed these prerequisites (or their equivalents) will be required to make up any deficiencies in these courses over and above the degree requirements.

Overview of the 54 credits for the program:
A minimum of 12 credits at the 300-level or above;
39 credits of courses across the four subject areas:
- 3 credits of Statistics
- 3 credits of History of Science
- 9 credits minimum from courses on the Living World
- 9 credits minimum from courses on Earth and Space
- 9 credits minimum from courses on the Material World
- 6 credits minimum from courses on the Technological World

15 credits of complementary courses either spread across the four subjects areas or concentrated in one subject area. Students who plan to teach Grade 11 Chemistry or Physics should concentrate their 15 complementary credits in the Material World.

All students need to plan their course selections with attention to the prerequisites.

**Statistics**
3 credits:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 203</td>
<td></td>
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<tr>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>Principles of Statistics 1</td>
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</tbody>
</table>

**History of Science**
3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 210</td>
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</tr>
<tr>
<td>HIST 238</td>
<td></td>
</tr>
<tr>
<td>HIST 319</td>
<td></td>
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<tr>
<td>HIST 350</td>
<td></td>
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<tr>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>Perspectives of Science</td>
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<td></td>
<td>Histories of Science</td>
</tr>
<tr>
<td></td>
<td>The Scientific Revolution</td>
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<tr>
<td></td>
<td>Science and the Enlightenment</td>
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</tbody>
</table>

**The Living World - Required**
6 credits:

* Note: Students select either BIOL 200 or LSCI 202, but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 200*</td>
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</tr>
<tr>
<td>BIOL 206</td>
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</tr>
<tr>
<td>LSCI 202*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>Molecular Biology</td>
</tr>
<tr>
<td></td>
<td>Methods in Biology of Organisms</td>
</tr>
<tr>
<td></td>
<td>Molecular Cell Biology</td>
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</tbody>
</table>

**The Living World - Complementary**

Students select a minimum of 3 credits to a maximum of 15 credits from courses on the Living World in the areas of:

- Cell and Molecular Biology
- Human and Organismal Biology
- Populations, Ecosystems, and Evolution

**The Living World - Cell and Molecular Biology**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 201</td>
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<tr>
<td>BIOL 202</td>
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<tr>
<td>BIOL 300</td>
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<td>BIOL 301</td>
<td></td>
</tr>
<tr>
<td>BIOL 313</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>Cell Biology and Metabolism</td>
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<tr>
<td></td>
<td>Basic Genetics</td>
</tr>
<tr>
<td></td>
<td>Molecular Biology of the Gene</td>
</tr>
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<td></td>
<td>Cell and Molecular Laboratory</td>
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<tr>
<td></td>
<td>Eukaryotic Cell Biology</td>
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</table>

**The Living World - Human and Organismal Biology**

<table>
<thead>
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<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 205</td>
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<tr>
<td>EDKP 292</td>
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<td>EDKP 395</td>
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<td>NUTR 207</td>
<td></td>
</tr>
<tr>
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<tr>
<td>PHGY 209</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td>Biology of Organisms</td>
</tr>
<tr>
<td></td>
<td>Nutrition and Wellness</td>
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<tr>
<td></td>
<td>Exercise Physiology</td>
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<td></td>
<td>Nutrition and Health</td>
</tr>
<tr>
<td></td>
<td>Human Nutrition</td>
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<tr>
<td></td>
<td>Mammalian Physiology 1</td>
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</table>
### The Living World - Populations, Ecosystems, and Evolution

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
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</thead>
<tbody>
<tr>
<td>BIOL 215</td>
<td>3</td>
<td>Introduction to Ecology and Evolution</td>
</tr>
<tr>
<td>BIOL 240</td>
<td>3</td>
<td>Monterey Flora</td>
</tr>
<tr>
<td>BIOL 304</td>
<td>3</td>
<td>Evolution</td>
</tr>
<tr>
<td>BIOL 305</td>
<td>3</td>
<td>Animal Diversity</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>3</td>
<td>Ecological Dynamics</td>
</tr>
<tr>
<td>BIOL 310</td>
<td>3</td>
<td>Biodiversity and Ecosystems</td>
</tr>
<tr>
<td>BIOL 331</td>
<td>3</td>
<td>Ecology/Behaviour Field Course</td>
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<tr>
<td>BIOL 352</td>
<td>3</td>
<td>Vertebrate Evolution</td>
</tr>
<tr>
<td>ENVB 305</td>
<td>3</td>
<td>Population &amp; Community Ecology</td>
</tr>
<tr>
<td>EPSC 334</td>
<td>3</td>
<td>Invertebrate Paleontology</td>
</tr>
</tbody>
</table>

### Earth and Space - Complementary

Students select a minimum of 9 credits to a maximum of 24 credits from courses on Earth and Space with the following specifications:

- a minimum of 6 to a maximum of 21 credits from Earth and Space
- a minimum of 3 to a maximum of 18 credits from Environment

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATOC 214</td>
<td>3</td>
<td>Introduction: Physics of the Atmosphere</td>
</tr>
<tr>
<td>ATOC 215</td>
<td>3</td>
<td>Oceans, Weather and Climate</td>
</tr>
<tr>
<td>ATOC 219</td>
<td>3</td>
<td>Introduction to Atmospheric Chemistry</td>
</tr>
<tr>
<td>ATOC 309</td>
<td>3</td>
<td>Weather Radars and Satellites</td>
</tr>
<tr>
<td>ATOC 315</td>
<td>3</td>
<td>Thermodynamics and Convection</td>
</tr>
<tr>
<td>ENVR 202</td>
<td>3</td>
<td>The Evolving Earth</td>
</tr>
<tr>
<td>EPSC 201</td>
<td>3</td>
<td>Understanding Planet Earth</td>
</tr>
<tr>
<td>EPSC 203</td>
<td>3</td>
<td>Structural Geology</td>
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<tr>
<td>EPSC 210</td>
<td>3</td>
<td>Introductory Mineralogy</td>
</tr>
<tr>
<td>EPSC 212</td>
<td>3</td>
<td>Introductory Petrology</td>
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<tr>
<td>EPSC 220</td>
<td>3</td>
<td>Principles of Geochemistry</td>
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<td>EPSC 221</td>
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<td>General Geology</td>
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<td>EPSC 225</td>
<td>1</td>
<td>Properties of Minerals</td>
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<td>EPSC 233</td>
<td>3</td>
<td>Earth and Life History</td>
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<td>EPSC 320</td>
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<td>Elementary Earth Physics</td>
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<td>EPSC 330</td>
<td>3</td>
<td>Earthquakes and Earth Structure</td>
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<tr>
<td>EPSC 350</td>
<td>3</td>
<td>Tectonics</td>
</tr>
<tr>
<td>EPSC 405</td>
<td>3</td>
<td>Planetary Geology</td>
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<tr>
<td>ESYS 200</td>
<td>3</td>
<td>Earth System Processes</td>
</tr>
<tr>
<td>ESYS 300</td>
<td>3</td>
<td>Investigating the Earth System</td>
</tr>
<tr>
<td>ESYS 301</td>
<td>3</td>
<td>Earth System Modelling</td>
</tr>
<tr>
<td>GEOG 272</td>
<td>3</td>
<td>Earth's Changing Surface</td>
</tr>
<tr>
<td>GEOG 321</td>
<td>3</td>
<td>Climatic Environments</td>
</tr>
<tr>
<td>PHYS 214</td>
<td>3</td>
<td>Introductory Astrophysics</td>
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</table>
### Earth and Space - Environment

<table>
<thead>
<tr>
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<th>Credits</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>ENVR 200</td>
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<td>The Global Environment</td>
</tr>
<tr>
<td>ENVR 201</td>
<td>3</td>
<td>Society, Environment and Sustainability</td>
</tr>
<tr>
<td>ENVR 203</td>
<td>3</td>
<td>Knowledge, Ethics and Environment</td>
</tr>
<tr>
<td>ENVR 301</td>
<td>3</td>
<td>Environmental Research Design</td>
</tr>
<tr>
<td>GEOG 200</td>
<td>3</td>
<td>Geographical Perspectives: World Environmental Problems</td>
</tr>
<tr>
<td>GEOG 203</td>
<td>3</td>
<td>Environmental Systems</td>
</tr>
<tr>
<td>GEOG 205</td>
<td>3</td>
<td>Global Change: Past, Present and Future</td>
</tr>
<tr>
<td>GEOG 221</td>
<td>3</td>
<td>Environment and Health</td>
</tr>
</tbody>
</table>

### The Material World - Required

Students complete 9 credits of required courses on the Material World as specified below.

<table>
<thead>
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<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 281</td>
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<td>Inorganic Chemistry 1</td>
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One of:

<table>
<thead>
<tr>
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<th>Title</th>
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</thead>
<tbody>
<tr>
<td>CHEM 203</td>
<td>3</td>
<td>Survey of Physical Chemistry</td>
</tr>
<tr>
<td>CHEM 223</td>
<td>2</td>
<td>Introductory Physical Chemistry 1</td>
</tr>
</tbody>
</table>

One of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 211</td>
<td>3</td>
<td>Organic Chemistry 1 Lectures</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 232</td>
<td>4</td>
<td>Organic Chemistry Principles</td>
</tr>
</tbody>
</table>

### The Material World - Complementary

Students select 0 to 15 credits of complementary courses on the Material World.

*Note: If CHEM 287 is selected, CHEM 297 must also be taken.*

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 222</td>
<td>4</td>
<td>Introductory Organic Chemistry 2</td>
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<tr>
<td>CHEM 243</td>
<td>2</td>
<td>Introductory Physical Chemistry 2</td>
</tr>
<tr>
<td>CHEM 253</td>
<td>1</td>
<td>Introductory Physical Chemistry 1 Laboratory</td>
</tr>
<tr>
<td>CHEM 263</td>
<td>1</td>
<td>Introductory Physical Chemistry 2 Laboratory</td>
</tr>
<tr>
<td>CHEM 287*</td>
<td>2</td>
<td>Introductory Analytical Chemistry</td>
</tr>
<tr>
<td>CHEM 297*</td>
<td>1</td>
<td>Introductory Analytical Chemistry Laboratory</td>
</tr>
<tr>
<td>CHEM 301</td>
<td>3</td>
<td>Modern Inorganic Chemistry 2</td>
</tr>
<tr>
<td>CHEM 302</td>
<td>3</td>
<td>Introductory Organic Chemistry 3</td>
</tr>
<tr>
<td>CHEM 307</td>
<td>3</td>
<td>Analytical Chemistry of Pollutants</td>
</tr>
<tr>
<td>CHEM 319</td>
<td>3</td>
<td>Chemistry of Energy, Storage and Utilization</td>
</tr>
<tr>
<td>CHEM 381</td>
<td>3</td>
<td>Inorganic Chemistry 2</td>
</tr>
<tr>
<td>CHEM 392</td>
<td>3</td>
<td>Integrated Inorganic/Organic Laboratory</td>
</tr>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>PHYS 224</td>
<td>3</td>
<td>Physics of Music</td>
</tr>
</tbody>
</table>
PHYS 230 (3) Dynamics of Simple Systems
PHYS 232 (3) Heat and Waves
PHYS 241 (3) Signal Processing
PHYS 242 (2) Electricity and Magnetism
PHYS 257 (3) Experimental Methods 1
PHYS 258 (3) Experimental Methods 2
PHYS 271 (3) Introduction to Quantum Physics
PHYS 328 (3) Electronics
PHYS 331 (3) Topics in Classical Mechanics
PHYS 333 (3) Thermal and Statistical Physics
PHYS 339 (3) Measurements Laboratory in General Physics
PHYS 340 (3) Majors Electricity and Magnetism
PHYS 342 (3) Majors Electromagnetic Waves
PHYS 432 (3) Physics of Fluids
PHYS 434 (3) Optics
PHYS 436 (3) Modern Physics
PHYS 439 (3) Majors Laboratory in Modern Physics
PHYS 446 (3) Majors Quantum Physics

The Technological World

Students select a minimum of 6 credits to a maximum of 15 credits from courses on the Technological World.

* Note: Students may take either COMP 102 or COMP 280, but not both.

** Note: Credit will not be given for COMP 102 if it is taken concurrently with or after COMP 202.

COMP 102* (3) Computers and Computing
COMP 202** (3) Introduction to Computing 1
COMP 206 (3) Introduction to Software Systems
COMP 280* (3) History and Philosophy of Computing
COMP 364 (3) Computer Tools for Life Sciences
MATH 204 (3) Principles of Statistics 2
PHYS 334 (3) Advanced Materials

5.10.10 Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Cell/Molecular with Minor Chemistry for Teachers (135 credits)

The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Cell/Molecular with Minor Chemistry for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfill all the requirements for graduation for both the B.Sc. and the B.Ed.

Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

The Major Concentration Biology - Cell/Molecular with Minor Chemistry is one of the nine variations of the program and allows students to focus their Science degree in Cell/Molecular Biology with a subspecialization in Chemistry.

To fulfill the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:
(30 credits of Science Freshman Program (for students admitted without basic sciences))

60 credits of Education Component

69 credits of Science Component consisting of:
- 36 credits of Major Concentration Biology - Cell/Molecular
- 18 credits of Minor Chemistry
- 15 credits of Additional Science Courses

6 credits of Electives, of which at least 3 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.

For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

B.Sc. Freshman Program

Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUA) to obtain advice and approval of their course selection. Full details are available on the SOUA website at http://www.mcgill.ca/science/sousa. Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.

Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science courses, selected as follows:

General Math and Science Breadth

Six of the Freshman courses must satisfy one of the following:
Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;
or
Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

Science Complementary

The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:
1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.
2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.
3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/specific/.
4. The maximum number of courses per term, required, complementary, and elective, is five.

List of Approved Freshman Science Courses

Select the approved courses according to the instructions above.

Note:
* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)
* CHEM 120 (not open to students who have taken CHEM 115)

BIOL 111 (3) Principles: Organismal Biology
BIOL 112 (3) Cell and Molecular Biology
CHEM 110 (4) General Chemistry 1
CHEM 115* (4) Accelerated General Chemistry: Giants in Science
CHEM 120* (4) General Chemistry 2
COMP 202 (3) Introduction to Computing 1
ESYS 104 (3) The Earth System
MATH 133 (3) Linear Algebra and Geometry
PSYC 100 (3) Introduction to Psychology
First calculus course, one of:
- MATH 139 (4) Calculus 1 with Precalculus
- MATH 140 (3) Calculus 1
- MATH 150 (4) Calculus A

Second calculus course, one of:
- MATH 141 (4) Calculus 2
- MATH 151 (4) Calculus B

First physics course, one of:
- PHYS 101 (4) Introductory Physics - Mechanics
- PHYS 131 (4) Mechanics and Waves

Second physics course, one of:
- PHYS 102 (4) Introductory Physics - Electromagnetism
- PHYS 142 (4) Electromagnetism and Optics

**Electives**

Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at http://www.mcgill.ca/science/sousa/new_students/bsc_freshman/approved/. Certain courses offered by other faculties may also be taken, but some restrictions apply.

Consult the SOUSA website at http://www.mcgill.ca/science/sousa/continuing_students/bsc/outside/ for more information about taking courses from other faculties.

**Education Component (60 credits)**

60 credits of Education Component consisting of:
- 54 credits of required courses
- 6 credits of complementary courses

**Required Courses**

54 credits

* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman year.

- EDEC 201 (1) First Year Professional Seminar
- EDEC 215 (0) English Language Requirement
- EDEC 247* (3) Policy Issues in Quebec Education
- EDEC 254 (1) Second Professional Seminar (Secondary)
- EDEC 262* (3) Media, Technology and Education
- EDEC 351 (2) Third Professional Seminar (Secondary)
- EDEC 404 (3) Fourth Year Professional Seminar (Sec)
- EDES 335 (3) Teaching Secondary Science 1
- EDES 350 (3) Classroom Practices (Secondary)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDES 435</td>
<td>3</td>
<td>Teaching Secondary Science 2</td>
</tr>
<tr>
<td>EDFE 200</td>
<td>2</td>
<td>First Field Experience (K/Elem &amp; Secondary)</td>
</tr>
<tr>
<td>EDFE 254</td>
<td>3</td>
<td>Second Field Experience (Secondary)</td>
</tr>
<tr>
<td>EDFE 351</td>
<td>8</td>
<td>Third Field Experience (Secondary)</td>
</tr>
<tr>
<td>EDFE 451</td>
<td>7</td>
<td>Fourth Field Experience (Secondary)</td>
</tr>
<tr>
<td>EDPE 300*</td>
<td>3</td>
<td>Educational Psychology</td>
</tr>
<tr>
<td>EDPE 304</td>
<td>3</td>
<td>Measurement and Evaluation</td>
</tr>
<tr>
<td>EDPI 309*</td>
<td>3</td>
<td>Exceptional Students</td>
</tr>
<tr>
<td>EDPI 341</td>
<td>3</td>
<td>Instruction in Inclusive Schools</td>
</tr>
</tbody>
</table>

**Complementary Courses**
6 credits selected as follows:

* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the three following courses:

- EDEC 233* (3) First Nations and Inuit Education
- EDEC 248* (3) Multicultural Education
- EDEC 249* (3) Global Education and Social Justice

3 credits, one of the two following courses:

- EDEC 260* (3) Philosophical Foundations
- EDEC 261* (3) Philosophy of Catholic Education

**Major Concentration Biology - Cell/Molecular (36 credits)**
The Major Concentration Biology - Cell/Molecular is a planned sequence of courses designed to permit a degree of specialization in cell/molecular biology.

Advising Note: Freshman students should be aware that PHYS 101 and/or PHYS 102 are required for some of the courses in the major and minor concentrations in Biology.

**Required Courses**
25 credits selected as follows:

- BIOL 200 (3) Molecular Biology
- BIOL 201 (3) Cell Biology and Metabolism
- BIOL 202 (3) Basic Genetics
- BIOL 205 (3) Biology of Organisms
- BIOL 215 (3) Introduction to Ecology and Evolution
- BIOL 300 (3) Molecular Biology of the Gene
- BIOL 301 (4) Cell and Molecular Laboratory
- BIOL 303 (3) Developmental Biology

**Complementary Courses**
At least 11 credits selected from:

- BIOL 306 (3) Neural Basis of Behaviour
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 313</td>
<td>3</td>
<td>Eukaryotic Cell Biology</td>
</tr>
<tr>
<td>BIOL 314</td>
<td>3</td>
<td>Molecular Biology of Oncogenes</td>
</tr>
<tr>
<td>BIOL 370</td>
<td>3</td>
<td>Human Genetics Applied</td>
</tr>
<tr>
<td>BIOL 373</td>
<td>3</td>
<td>Biometry</td>
</tr>
<tr>
<td>BIOL 413</td>
<td>1</td>
<td>Directed Reading</td>
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<tr>
<td>BIOL 568</td>
<td>3</td>
<td>Topics on the Human Genome</td>
</tr>
<tr>
<td>BIOL 575</td>
<td>3</td>
<td>Human Biochemical Genetics</td>
</tr>
</tbody>
</table>

or other appropriate course at the 300 level or higher with the permission of an adviser.

**Minor Chemistry (18 credits)**

**Required Courses**

18 credits selected as follows:

* Note: denotes courses with CEGEP equivalents.

Substitutions for these by more advanced courses may be made at the discretion of the Adviser.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 203</td>
<td>3</td>
<td>Survey of Physical Chemistry</td>
</tr>
<tr>
<td>CHEM 212*</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 222*</td>
<td>4</td>
<td>Introductory Organic Chemistry 2</td>
</tr>
<tr>
<td>CHEM 253</td>
<td>1</td>
<td>Introductory Physical Chemistry 1 Laboratory</td>
</tr>
<tr>
<td>CHEM 281</td>
<td>3</td>
<td>Inorganic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 287</td>
<td>2</td>
<td>Introductory Analytical Chemistry</td>
</tr>
<tr>
<td>CHEM 297</td>
<td>1</td>
<td>Introductory Analytical Chemistry Laboratory</td>
</tr>
</tbody>
</table>

**Additional Science Courses**

15 credits selected as follows:

12 credits:

<table>
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<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 210</td>
<td>3</td>
<td>Perspectives of Science</td>
</tr>
<tr>
<td>CHEM 381</td>
<td>3</td>
<td>Inorganic Chemistry 2</td>
</tr>
<tr>
<td>MATH 203</td>
<td>3</td>
<td>Principles of Statistics 1</td>
</tr>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
</tbody>
</table>

plus 3 credits, one of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 180</td>
<td>3</td>
<td>World of Chemistry: Environment</td>
</tr>
<tr>
<td>CHEM 181</td>
<td>3</td>
<td>World of Chemistry: Food</td>
</tr>
<tr>
<td>CHEM 182</td>
<td>3</td>
<td>World of Chemistry: Technology</td>
</tr>
<tr>
<td>CHEM 183</td>
<td>3</td>
<td>World of Chemistry: Drugs</td>
</tr>
</tbody>
</table>

**Electives (6 credits)**

6 credits, of which at least 3 credits must be Science Electives.

The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.
5.10.11 Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Cell/Molecular with Minor Physics for Teachers (135 credits)

The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Cell/Molecular with Minor Physics for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfill all the requirements for graduation for both the B.Sc. and the B.Ed.

Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l’Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

The Major Concentration Biology - Cell/Molecular with Minor Physics is one of the nine variations of the program and allows students to focus their Science degree in Cell/Molecular Biology with a subspecialization in Physics.

To fulfill the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:

- 30 credits of Science Freshman Program (for students admitted without basic sciences))
- 60 credits of Education Component
- 69 credits of Science Component consisting of:
  - 36 credits of Major Concentration Biology - Cell/Molecular
  - 18 credits of Minor Physics
  - 15 credits of Additional Science Courses
- 6 credits of Electives, of which at least 3 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.

For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

B.Sc. Freshman Program

Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUSA) to obtain advice and approval of their course selection. Full details are available on the SOUSA website at http://www.mcgill.ca/science/sousa. Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.

Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science Courses, selected as follows:

General Math and Science Breadth

Six of the Freshman courses must satisfy one of the following:

Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;

or

Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

Science Complementary

The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:

1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.

2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.

3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/specific/.

4. The maximum number of courses per term, required, complementary, and elective, is five.

List of Approved Freshman Science Courses

Select the approved courses according to the instructions above.

Note:
* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)
* CHEM 120 (not open to students who have taken CHEM 115)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 111</td>
<td>3</td>
<td>Principles: Organismal Biology</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>3</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>4</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 115*</td>
<td>4</td>
<td>Accelerated General Chemistry: Giants in Science</td>
</tr>
<tr>
<td>CHEM 120*</td>
<td>4</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>COMP 202</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>ESYS 104</td>
<td>3</td>
<td>The Earth System</td>
</tr>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>PSYC 100</td>
<td>3</td>
<td>Introduction to Psychology</td>
</tr>
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First calculus course, one of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 139</td>
<td>4</td>
<td>Calculus 1 with Precalculus</td>
</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 150</td>
<td>4</td>
<td>Calculus A</td>
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</table>

Second calculus course, one of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 141</td>
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<td>Calculus 2</td>
</tr>
<tr>
<td>MATH 151</td>
<td>4</td>
<td>Calculus B</td>
</tr>
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</table>

First physics course, one of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 101</td>
<td>4</td>
<td>Introductory Physics - Mechanics</td>
</tr>
<tr>
<td>PHYS 131</td>
<td>4</td>
<td>Mechanics and Waves</td>
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</table>

Second physics course, one of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 102</td>
<td>4</td>
<td>Introductory Physics - Electromagnetism</td>
</tr>
<tr>
<td>PHYS 142</td>
<td>4</td>
<td>Electromagnetism and Optics</td>
</tr>
</tbody>
</table>

**Electives**

Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at http://www.mcgill.ca/science/sousa/new_students/00/bsc_freshman/approved/. Certain courses offered by other faculties may also be taken, but some restrictions apply.

Consult the SOUSA website at http://www.mcgill.ca/science/sousa/continuing_students/bsc/outside/ for more information about taking courses from other faculties.

**Education Component (60 credits)**

60 credits of Education Component, consisting of:

- 54 credits of required courses
- 6 credits of complementary courses

**Required Courses**

54 credits
* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman year.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 201</td>
<td>1</td>
<td>First Year Professional Seminar</td>
</tr>
<tr>
<td>EDEC 215</td>
<td>0</td>
<td>English Language Requirement</td>
</tr>
<tr>
<td>EDEC 247*</td>
<td>3</td>
<td>Policy Issues in Quebec Education</td>
</tr>
<tr>
<td>EDEC 254</td>
<td>1</td>
<td>Second Professional Seminar (Secondary)</td>
</tr>
<tr>
<td>EDEC 262*</td>
<td>3</td>
<td>Media, Technology and Education</td>
</tr>
<tr>
<td>EDEC 351</td>
<td>2</td>
<td>Third Professional Seminar (Secondary)</td>
</tr>
<tr>
<td>EDEC 404</td>
<td>3</td>
<td>Fourth Year Professional Seminar (Sec)</td>
</tr>
<tr>
<td>EDES 335</td>
<td>3</td>
<td>Teaching Secondary Science 1</td>
</tr>
<tr>
<td>EDES 350</td>
<td>3</td>
<td>Classroom Practices (Secondary)</td>
</tr>
<tr>
<td>EDES 435</td>
<td>3</td>
<td>Teaching Secondary Science 2</td>
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<td>2</td>
<td>First Field Experience (K/Elem &amp; Secondary)</td>
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<td>EDPE 304</td>
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<td>Measurement and Evaluation</td>
</tr>
<tr>
<td>EDPI 309*</td>
<td>3</td>
<td>Exceptional Students</td>
</tr>
<tr>
<td>EDPI 341</td>
<td>3</td>
<td>Instruction in Inclusive Schools</td>
</tr>
</tbody>
</table>

**Complementary Courses**

6 credits selected as follows:

* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the three following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 233*</td>
<td>3</td>
<td>First Nations and Inuit Education</td>
</tr>
<tr>
<td>EDEC 248*</td>
<td>3</td>
<td>Multicultural Education</td>
</tr>
<tr>
<td>EDEC 249*</td>
<td>3</td>
<td>Global Education and Social Justice</td>
</tr>
</tbody>
</table>

3 credits, one of the two following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 260*</td>
<td>3</td>
<td>Philosophical Foundations</td>
</tr>
<tr>
<td>EDEC 261*</td>
<td>3</td>
<td>Philosophy of Catholic Education</td>
</tr>
</tbody>
</table>

**Major Concentration Biology - Cell/Molecular (36 credits)**

The Major Concentration Biology - Cell/Molecular is a planned sequence of courses designed to permit a degree of specialization in cell/molecular biology.

Advising Note: Freshman students should be aware that PHYS 101 and/or PHYS 102 are required for some of the courses in the major and minor concentrations in Biology.

**Required Courses**

29 credits selected as follows:
* Students who have already taken CHEM 212 or its equivalent will choose another appropriate complementary course, to be approved by the Adviser. Regardless of the substitution, students must take at least 36 credits in this program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 200</td>
<td>3</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 201</td>
<td>3</td>
<td>Cell Biology and Metabolism</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>3</td>
<td>Basic Genetics</td>
</tr>
<tr>
<td>BIOL 205</td>
<td>3</td>
<td>Biology of Organisms</td>
</tr>
<tr>
<td>BIOL 215</td>
<td>3</td>
<td>Introduction to Ecology and Evolution</td>
</tr>
<tr>
<td>BIOL 300</td>
<td>3</td>
<td>Molecular Biology of the Gene</td>
</tr>
<tr>
<td>BIOL 301</td>
<td>4</td>
<td>Cell and Molecular Laboratory</td>
</tr>
<tr>
<td>BIOL 303</td>
<td>3</td>
<td>Developmental Biology</td>
</tr>
<tr>
<td>CHEM 212*</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
</tbody>
</table>

**Complementary Courses**

At least 7 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 306</td>
<td>3</td>
<td>Neural Basis of Behaviour</td>
</tr>
<tr>
<td>BIOL 313</td>
<td>3</td>
<td>Eukaryotic Cell Biology</td>
</tr>
<tr>
<td>BIOL 314</td>
<td>3</td>
<td>Molecular Biology of Oncogenes</td>
</tr>
<tr>
<td>BIOL 370</td>
<td>3</td>
<td>Human Genetics Applied</td>
</tr>
<tr>
<td>BIOL 373</td>
<td>3</td>
<td>Biometry</td>
</tr>
<tr>
<td>BIOL 413</td>
<td>1</td>
<td>Directed Reading</td>
</tr>
<tr>
<td>BIOL 568</td>
<td>3</td>
<td>Topics on the Human Genome</td>
</tr>
<tr>
<td>BIOL 575</td>
<td>3</td>
<td>Human Biochemical Genetics</td>
</tr>
</tbody>
</table>

or other appropriate course at the 300 level or higher with the permission of an adviser.

**Minor Physics (18 credits)**

**Required Course**

3 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 257</td>
<td>3</td>
<td>Experimental Methods 1</td>
</tr>
</tbody>
</table>

**Complementary Courses**

15 credits to be selected as follows:

One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 230</td>
<td>3</td>
<td>Dynamics of Simple Systems</td>
</tr>
<tr>
<td>PHYS 251</td>
<td>3</td>
<td>Honours Classical Mechanics 1</td>
</tr>
</tbody>
</table>

One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 232</td>
<td>3</td>
<td>Heat and Waves</td>
</tr>
<tr>
<td>PHYS 253</td>
<td>3</td>
<td>Thermal Physics</td>
</tr>
</tbody>
</table>

One of:
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 241</td>
<td>(3)</td>
<td>Signal Processing</td>
</tr>
<tr>
<td>PHYS 258</td>
<td>(3)</td>
<td>Experimental Methods 2</td>
</tr>
</tbody>
</table>

One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 214</td>
<td>(3)</td>
<td>Introductory Astrophysics</td>
</tr>
<tr>
<td>PHYS 224</td>
<td>(3)</td>
<td>Physics of Music</td>
</tr>
<tr>
<td>PHYS 260</td>
<td>(3)</td>
<td>Modern Physics and Relativity</td>
</tr>
<tr>
<td>PHYS 271</td>
<td>(3)</td>
<td>Introduction to Quantum Physics</td>
</tr>
</tbody>
</table>

One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 340</td>
<td>(3)</td>
<td>Majors Electricity and Magnetism</td>
</tr>
<tr>
<td>PHYS 350</td>
<td>(3)</td>
<td>Honours Electricity and Magnetism</td>
</tr>
</tbody>
</table>

**Additional Science Courses (15 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 210</td>
<td>(3)</td>
<td>Perspectives of Science</td>
</tr>
<tr>
<td>MATH 203</td>
<td>(3)</td>
<td>Principles of Statistics 1</td>
</tr>
<tr>
<td>MATH 222</td>
<td>(3)</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 223</td>
<td>(3)</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 314</td>
<td>(3)</td>
<td>Advanced Calculus</td>
</tr>
</tbody>
</table>

**Electives (6 credits)**

6 credits, of which at least 3 credits must be Science Electives. The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.

### 5.10.12 Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Organismal with Minor Chemistry for Teachers (135 credits)

The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Organismal with Minor Chemistry for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfill all the requirements for graduation for both the B.Sc. and the B.Ed.

Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

The Major Concentration Biology - Organismal with Minor Chemistry is one of the nine variations of the program and allows students to focus their Science degree in Organismal Biology with a subspecialization in Chemistry.

To fulfill the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:

- (30 credits of Science Freshman Program (for students admitted without basic sciences))
- 60 credits of Education Component
- 69 credits of Science Component consisting of:
  - 36 credits of Major Concentration Biology - Organismal
  - 18 credits of Minor Chemistry
  - 15 credits of Additional Science Courses
- 6 credits of Electives, of which at least 3 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.
For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

**B.Sc. Freshman Program**

Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUSA) to obtain advice and approval of their course selection. Full details are available on the SOUSA website at http://www.mcgill.ca/science/sousa. Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.

Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science courses, selected as follows:

**General Math and Science Breadth**

Six of the Freshman courses must satisfy one of the following:

- Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;
- or

- Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

**Science Complementary**

The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:

1. Students who have not studied all of Biology, Chemistry and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.

2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.

3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/bsc/freshman.

4. The maximum number of courses per term, required, complementary, and elective, is five.

**List of Approved Freshman Science Courses**

Select the approved courses according to the instructions above.

Note:

* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)
* CHEM 120 (not open to students who have taken CHEM 115)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 111</td>
<td>3</td>
<td>Principles: Organismal Biology</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>3</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>4</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 115*</td>
<td>4</td>
<td>Accelerated General Chemistry: Giants in Science</td>
</tr>
<tr>
<td>CHEM 120*</td>
<td>4</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>COMP 202</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>ESYS 104</td>
<td>3</td>
<td>The Earth System</td>
</tr>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>PSYC 100</td>
<td>3</td>
<td>Introduction to Psychology</td>
</tr>
</tbody>
</table>

First calculus course, one of:

- MATH 139 (4) Calculus 1 with Precalculus
- MATH 140 (3) Calculus 1
- MATH 150 (4) Calculus A

Second calculus course, one of:
MATH 141 (4) Calculus 2
MATH 151 (4) Calculus B

First physics course, one of:
PHYS 101 (4) Introductory Physics - Mechanics
PHYS 131 (4) Mechanics and Waves

Second physics course, one of:
PHYS 102 (4) Introductory Physics - Electromagnetism
PHYS 142 (4) Electromagnetism and Optics

Electives
Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/approved/. Certain courses offered by other faculties may also be taken, but some restrictions apply.
Consult the SOUSA website at http://www.mcgill.ca/science/sousa/continuing_students/bsc/outside/ for more information about taking courses from other faculties.

Education Component (60 credits)
60 credits of Education Component consisting of:
54 credits of required courses
6 credits of complementary courses

Required Courses
54 credits
* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.
The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman year.

EDEC 201 (1) First Year Professional Seminar
EDEC 215 (0) English Language Requirement
EDEC 247* (3) Policy Issues in Quebec Education
EDEC 254 (1) Second Professional Seminar (Secondary)
EDEC 262* (3) Media, Technology and Education
EDEC 351 (2) Third Professional Seminar (Secondary)
EDEC 404 (3) Fourth Year Professional Seminar (Sec)
EDES 335 (3) Teaching Secondary Science 1
EDES 350 (3) Classroom Practices (Secondary)
EDES 435 (3) Teaching Secondary Science 2
EDFE 200 (2) First Field Experience (K/Elem & Secondary)
EDFE 254 (3) Second Field Experience (Secondary)
EDFE 351 (8) Third Field Experience (Secondary)
EDFE 451 (7) Fourth Field Experience (Secondary)
EDPE 300* (3) Educational Psychology
EDPE 304 (3) Measurement and Evaluation
EDPI 309* (3) Exceptional Students
EDPI 341 (3) Instruction in Inclusive Schools

Complementary Courses

6 credits selected as follows:
* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the three following courses:
EDEC 233* (3) First Nations and Inuit Education
EDEC 248* (3) Multicultural Education
EDEC 249* (3) Global Education and Social Justice

3 credits, one of the two following courses:
EDEC 260* (3) Philosophical Foundations
EDEC 261* (3) Philosophy of Catholic Education

Major Concentration Biology - Organismal (36 credits)

The Major Concentration Biology - Organismal is a planned sequence of courses designed to permit a degree of specialization in organismal biology.

Advising Note: Freshman students should be aware that PHYS 101 and/or PHYS 102 are required for some of the courses in the major and minor concentrations in Biology.

Required Courses

24 credits

BIOL 200 (3) Molecular Biology
BIOL 201 (3) Cell Biology and Metabolism
BIOL 202 (3) Basic Genetics
BIOL 205 (3) Biology of Organisms
BIOL 206 (3) Methods in Biology of Organisms
BIOL 215 (3) Introduction to Ecology and Evolution
BIOL 304 (3) Evolution
BIOL 308 (3) Ecological Dynamics

Complementary Courses

12 credits selected from:

BIOL 303 (3) Developmental Biology
BIOL 305 (3) Animal Diversity
BIOL 306 (3) Neural Basis of Behaviour
BIOL 307 (3) Behavioural Ecology/Sociobiology
BIOL 310 (3) Biodiversity and Ecosystems
BIOL 331 (3) Ecology/Behaviour Field Course
BIOL 342 (3) Marine Biology
BIOL 350 (3) Insect Biology and Control
or other appropriate course at the 300 level or higher with the permission of an adviser.

Minor Chemistry (18 credits)

Required Courses
18 credits selected as follows:
* Note: denotes courses with CEGEP equivalents.
Substitutions for these by more advanced courses may be made at the discretion of the Adviser.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 203</td>
<td>3</td>
<td>Survey of Physical Chemistry</td>
</tr>
<tr>
<td>CHEM 212*</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 222*</td>
<td>4</td>
<td>Introductory Organic Chemistry 2</td>
</tr>
<tr>
<td>CHEM 253</td>
<td>1</td>
<td>Introductory Physical Chemistry 1 Laboratory</td>
</tr>
<tr>
<td>CHEM 281</td>
<td>3</td>
<td>Inorganic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 287</td>
<td>2</td>
<td>Introductory Analytical Chemistry</td>
</tr>
<tr>
<td>CHEM 297</td>
<td>1</td>
<td>Introductory Analytical Chemistry Laboratory</td>
</tr>
</tbody>
</table>

Additional Science Courses (15 credits)
15 credits selected as follows:
12 credits:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 210</td>
<td>3</td>
<td>Perspectives of Science</td>
</tr>
<tr>
<td>CHEM 381</td>
<td>3</td>
<td>Inorganic Chemistry 2</td>
</tr>
<tr>
<td>MATH 203</td>
<td>3</td>
<td>Principles of Statistics 1</td>
</tr>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
</tbody>
</table>

plus 3 credits, one of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 180</td>
<td>3</td>
<td>World of Chemistry: Environment</td>
</tr>
<tr>
<td>CHEM 181</td>
<td>3</td>
<td>World of Chemistry: Food</td>
</tr>
<tr>
<td>CHEM 182</td>
<td>3</td>
<td>World of Chemistry: Technology</td>
</tr>
<tr>
<td>CHEM 183</td>
<td>3</td>
<td>World of Chemistry: Drugs</td>
</tr>
</tbody>
</table>

Electives (6 credits)
6 credits, of which at least 3 credits must be Science Electives.
The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.

5.10.13 Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Organismal with Minor Physics for Teachers (135 credits)

The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Organismal with Minor Physics for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements
for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfill all the requirements for graduation for both the B.Sc. and the B.Ed.

Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

The Major Concentration Biology - Organismal with Minor Physics is one of the nine variations of the program and allows students to focus their Science degree in Organismal Biology with a subspecialization in Physics.

To fulfill the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:

- (30 credits of Science Freshman Program (for students admitted without basic sciences))
- 60 credits of Education Component
- 70 credits of Science Component consisting of:
  - 37 credits of Major Concentration Biology - Organismal
  - 18 credits of Minor Physics
  - 15 credits of Additional Science Courses
- 5 credits of Electives, of which at least 2 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.

For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

**B.Sc. Freshman Program**

Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUA) to obtain advice and approval of their course selection. Full details are available on the SOUSA website at http://www.mcgill.ca/science/sousa. Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.

Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science courses, selected as follows:

**General Math and Science Breadth**

Six of the Freshman courses must satisfy one of the following:

- Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;
- or
- Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

**Science Complementary**

The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:

1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.

2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.

3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/specif/.

4. The maximum number of courses per term, required, complementary, and elective, is five.

**List of Approved Freshman Science Courses**

Select the approved courses according to the instructions above.

Note:

- * CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)
- * CHEM 120 (not open to students who have taken CHEM 115)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 111</td>
<td>(3)</td>
<td>Principles: Organismal Biology</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>(3)</td>
<td>Cell and Molecular Biology</td>
</tr>
</tbody>
</table>
CHEM 110 (4) General Chemistry 1
CHEM 115* (4) Accelerated General Chemistry: Giants in Science
CHEM 120* (4) General Chemistry 2
COMP 202 (3) Introduction to Computing 1
ESYS 104 (3) The Earth System
MATH 133 (3) Linear Algebra and Geometry
PSYC 100 (3) Introduction to Psychology

First calculus course, one of:
MATH 139 (4) Calculus 1 with Precalculus
MATH 140 (3) Calculus 1
MATH 150 (4) Calculus A

Second calculus course, one of:
MATH 141 (4) Calculus 2
MATH 151 (4) Calculus B

First physics course, one of:
PHYS 101 (4) Introductory Physics - Mechanics
PHYS 131 (4) Mechanics and Waves

Second physics course, one of:
PHYS 102 (4) Introductory Physics - Electromagnetism
PHYS 142 (4) Electromagnetism and Optics

Electives
Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/approved/. Certain courses offered by other faculties may also be taken, but some restrictions apply.
Consult the SOUSA website at http://www.mcgill.ca/science/sousa/continuing_students/bsc/outside/ for more information about taking courses from other faculties.

Education Component (60 credits)
60 credits of Education Component, consisting of:
54 credits of required courses
6 credits of complementary courses

Required Courses
54 credits
* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.
The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman Year.
EDEC 201 (1) First Year Professional Seminar
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 215</td>
<td>0</td>
<td>English Language Requirement</td>
</tr>
<tr>
<td>EDEC 247*</td>
<td>3</td>
<td>Policy Issues in Quebec Education</td>
</tr>
<tr>
<td>EDEC 254</td>
<td>1</td>
<td>Second Professional Seminar (Secondary)</td>
</tr>
<tr>
<td>EDEC 262*</td>
<td>3</td>
<td>Media, Technology and Education</td>
</tr>
<tr>
<td>EDEC 351</td>
<td>2</td>
<td>Third Professional Seminar (Secondary)</td>
</tr>
<tr>
<td>EDEC 404</td>
<td>3</td>
<td>Fourth Year Professional Seminar (Sec)</td>
</tr>
<tr>
<td>EDES 335</td>
<td>3</td>
<td>Teaching Secondary Science 1</td>
</tr>
<tr>
<td>EDES 350</td>
<td>3</td>
<td>Classroom Practices (Secondary)</td>
</tr>
<tr>
<td>EDES 435</td>
<td>3</td>
<td>Teaching Secondary Science 2</td>
</tr>
<tr>
<td>EDFE 200</td>
<td>2</td>
<td>First Field Experience (K/Elem &amp; Secondary)</td>
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<tr>
<td>EDFE 254</td>
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<td>Second Field Experience (Secondary)</td>
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<td>EDFE 451</td>
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</tr>
<tr>
<td>EDPE 300*</td>
<td>3</td>
<td>Educational Psychology</td>
</tr>
<tr>
<td>EDPE 304</td>
<td>3</td>
<td>Measurement and Evaluation</td>
</tr>
<tr>
<td>EDPI 309*</td>
<td>3</td>
<td>Exceptional Students</td>
</tr>
<tr>
<td>EDPI 341</td>
<td>3</td>
<td>Instruction in Inclusive Schools</td>
</tr>
<tr>
<td>EDEC 233*</td>
<td>3</td>
<td>First Nations and Inuit Education</td>
</tr>
<tr>
<td>EDEC 248*</td>
<td>3</td>
<td>Multicultural Education</td>
</tr>
<tr>
<td>EDEC 249*</td>
<td>3</td>
<td>Global Education and Social Justice</td>
</tr>
<tr>
<td>EDEC 260*</td>
<td>3</td>
<td>Philosophical Foundations</td>
</tr>
<tr>
<td>EDEC 261*</td>
<td>3</td>
<td>Philosophy of Catholic Education</td>
</tr>
</tbody>
</table>

**Complementary Courses**

6 credits selected as follows:

* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the three following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 233*</td>
<td>3</td>
<td>First Nations and Inuit Education</td>
</tr>
<tr>
<td>EDEC 248*</td>
<td>3</td>
<td>Multicultural Education</td>
</tr>
<tr>
<td>EDEC 249*</td>
<td>3</td>
<td>Global Education and Social Justice</td>
</tr>
</tbody>
</table>

3 credits, one of the two following courses:

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<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 260*</td>
<td>3</td>
<td>Philosophical Foundations</td>
</tr>
<tr>
<td>EDEC 261*</td>
<td>3</td>
<td>Philosophy of Catholic Education</td>
</tr>
</tbody>
</table>

**Major Concentration Biology - Organismal (37 credits)**

The Major Concentration Biology - Organismal is a planned sequence of courses designed to permit a degree of specialization in organismal biology.

Advising Note: Freshman students should be aware that PHYS 101 and/or PHYS 102 are required for some of the courses in the major and minor concentrations in Biology.

**Required Courses**

28 credits selected as follows:

* Students who have already taken CHEM 212 or its equivalent will choose another appropriate complementary course, to be approved by the Adviser. Regardless of the substitution, students must take at least 36 credits in this program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>BIOL 200</td>
<td>3</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 201</td>
<td>3</td>
<td>Cell Biology and Metabolism</td>
</tr>
<tr>
<td>Course Code</td>
<td>Credits</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>3</td>
<td>Basic Genetics</td>
</tr>
<tr>
<td>BIOL 205</td>
<td>3</td>
<td>Biology of Organisms</td>
</tr>
<tr>
<td>BIOL 206</td>
<td>3</td>
<td>Methods in Biology of Organisms</td>
</tr>
<tr>
<td>BIOL 215</td>
<td>3</td>
<td>Introduction to Ecology and Evolution</td>
</tr>
<tr>
<td>BIOL 304</td>
<td>3</td>
<td>Evolution</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>3</td>
<td>Ecological Dynamics</td>
</tr>
<tr>
<td>CHEM 212*</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
</tbody>
</table>

**Complementary Courses**

9 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 303</td>
<td>3</td>
<td>Developmental Biology</td>
</tr>
<tr>
<td>BIOL 305</td>
<td>3</td>
<td>Animal Diversity</td>
</tr>
<tr>
<td>BIOL 306</td>
<td>3</td>
<td>Neural Basis of Behaviour</td>
</tr>
<tr>
<td>BIOL 307</td>
<td>3</td>
<td>Behavioural Ecology/Sociobiology</td>
</tr>
<tr>
<td>BIOL 310</td>
<td>3</td>
<td>Biodiversity and Ecosystems</td>
</tr>
<tr>
<td>BIOL 331</td>
<td>3</td>
<td>Ecology/Behaviour Field Course</td>
</tr>
<tr>
<td>BIOL 342</td>
<td>3</td>
<td>Marine Biology</td>
</tr>
<tr>
<td>BIOL 350</td>
<td>3</td>
<td>Insect Biology and Control</td>
</tr>
<tr>
<td>BIOL 352</td>
<td>3</td>
<td>Vertebrate Evolution</td>
</tr>
<tr>
<td>BIOL 373</td>
<td>3</td>
<td>Biometry</td>
</tr>
<tr>
<td>BIOL 427</td>
<td>3</td>
<td>Herpetology</td>
</tr>
<tr>
<td>BIOL 435</td>
<td>3</td>
<td>Natural Selection</td>
</tr>
<tr>
<td>BIOL 441</td>
<td>3</td>
<td>Biological Oceanography</td>
</tr>
<tr>
<td>BIOL 465</td>
<td>3</td>
<td>Conservation Biology</td>
</tr>
</tbody>
</table>

or other appropriate course at the 300 level or higher with the permission of an adviser.

**Minor Physics (18 credits)**

**Required Course**

3 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 257</td>
<td>3</td>
<td>Experimental Methods 1</td>
</tr>
</tbody>
</table>

**Complementary Courses**

15 credits to be selected as follows:

One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 230</td>
<td>3</td>
<td>Dynamics of Simple Systems</td>
</tr>
<tr>
<td>PHYS 251</td>
<td>3</td>
<td>Honours Classical Mechanics 1</td>
</tr>
</tbody>
</table>

One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 232</td>
<td>3</td>
<td>Heat and Waves</td>
</tr>
<tr>
<td>PHYS 253</td>
<td>3</td>
<td>Thermal Physics</td>
</tr>
</tbody>
</table>
One of:

PHYS 241 (3) Signal Processing
PHYS 258 (3) Experimental Methods 2

One of:

PHYS 214 (3) Introductory Astrophysics
PHYS 224 (3) Physics of Music
PHYS 260 (3) Modern Physics and Relativity
PHYS 271 (3) Introduction to Quantum Physics

One of:

PHYS 340 (3) Majors Electricity and Magnetism
PHYS 350 (3) Honours Electricity and Magnetism

Additional Science Courses (15 credits)

BIOL 210 (3) Perspectives of Science
MATH 203 (3) Principles of Statistics 1
MATH 222 (3) Calculus 3
MATH 223 (3) Linear Algebra
MATH 314 (3) Advanced Calculus

Electives (5 credits)

5 credits, of which at least 2 credits must be Science Electives.

The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.

5.10.14 Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Chemistry with Minor Biology for Teachers (135 credits)

The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Chemistry with Minor Biology for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfil all the requirements for graduation for both the B.Sc. and the B.Ed.

Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

The Major Concentration Chemistry with Minor Biology is one of the nine variations of the program and allows students to focus their Science degree in Chemistry with a subspecialization in Biology.

To fulfil the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:

(30 credits of Science Freshman Program (for students admitted without basic sciences))

60 credits of Education Component
69 credits of Science Component consisting of:

- 36 credits of the Major Concentration Chemistry
- 24 credits of the Minor Biology
- 9 credits of Additional Science Courses

6 credits of Electives, of which at least 3 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.

For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

**B.Sc. Freshman Program**

Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUA) to obtain advice and approval of their course selection. Full details are available on the SOUSA website at http://www.mcgill.ca/science/sousa. Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.

Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science Courses, selected as follows:

**General Math and Science Breadth**

Six of the Freshman courses must satisfy one of the following:

Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;

or

Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

**Science Complementary**

The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:

1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.

2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.

3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/specific/.

4. The maximum number of courses per term, required, complementary, and elective, is five.

**List of Approved Freshman Science Courses**

Select the approved courses according to the instructions above.

Note:

* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)
* CHEM 120 (not open to students who have taken CHEM 115)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>BIOL 111</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 110</td>
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<tr>
<td>CHEM 115*</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 120*</td>
<td>4</td>
</tr>
<tr>
<td>COMP 202</td>
<td>3</td>
</tr>
<tr>
<td>ESYS 104</td>
<td>3</td>
</tr>
<tr>
<td>MATH 133</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 100</td>
<td>3</td>
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</table>

First calculus course, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>MATH 139</td>
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</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
</tr>
<tr>
<td>MATH 150</td>
<td>4</td>
</tr>
</tbody>
</table>

Note:

* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)
* CHEM 120 (not open to students who have taken CHEM 115)
Second calculus course, one of:

- MATH 141 (4) Calculus 2
- MATH 151 (4) Calculus B

First physics course, one of:

- PHYS 101 (4) Introductory Physics - Mechanics
- PHYS 131 (4) Mechanics and Waves

Second physics course, one of:

- PHYS 102 (4) Introductory Physics - Electromagnetism
- PHYS 142 (4) Electromagnetism and Optics

Electives

Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at http://www.mcgill.ca/science/sousa/new_students/bsc_freshman/approved/. Certain courses offered by other faculties may also be taken, but some restrictions apply.

Consult the SOUSA website at http://www.mcgill.ca/science/sousa/continuing_students/bsc/outside/ for more information about taking courses from other faculties.

Education Component (60 credits)

60 credits of Education Component, consisting of:

- 54 credits of required courses
- 6 credits of complementary courses

Required Courses

54 credits

* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman year.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 201</td>
<td>(1)</td>
<td>First Year Professional Seminar</td>
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<tr>
<td>EDEC 215</td>
<td>(0)</td>
<td>English Language Requirement</td>
</tr>
<tr>
<td>EDEC 247*</td>
<td>(3)</td>
<td>Policy Issues in Quebec Education</td>
</tr>
<tr>
<td>EDEC 254</td>
<td>(1)</td>
<td>Second Professional Seminar (Secondary)</td>
</tr>
<tr>
<td>EDEC 262*</td>
<td>(3)</td>
<td>Media, Technology and Education</td>
</tr>
<tr>
<td>EDEC 351</td>
<td>(2)</td>
<td>Third Professional Seminar (Secondary)</td>
</tr>
<tr>
<td>EDEC 404</td>
<td>(3)</td>
<td>Fourth Year Professional Seminar (Sec)</td>
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<td>(3)</td>
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<tr>
<td>EDES 350</td>
<td>(3)</td>
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<td>EDES 435</td>
<td>(3)</td>
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<tr>
<td>EDFE 254</td>
<td>(3)</td>
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<td>Third Field Experience (Secondary)</td>
</tr>
<tr>
<td>EDFE 451</td>
<td>(7)</td>
<td>Fourth Field Experience (Secondary)</td>
</tr>
</tbody>
</table>
EDPE 300*  (3)  Educational Psychology
EDPE 304  (3)  Measurement and Evaluation
EDPI 309*  (3)  Exceptional Students
EDPI 341  (3)  Instruction in Inclusive Schools

**Complementary Courses**

6 credits selected as follows:

* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the three following courses:

EDEC 233*  (3)  First Nations and Inuit Education
EDEC 248*  (3)  Multicultural Education
EDEC 249*  (3)  Global Education and Social Justice

3 credits, one of the two following courses:

EDEC 260*  (3)  Philosophical Foundations
EDEC 261*  (3)  Philosophy of Catholic Education

**Major Concentration Chemistry (36 credits)**

The Major Concentration Chemistry is not certified by the Ordre des Chimistes du Québec. Students interested in pursuing a career in Chemistry in Quebec are advised to take an appropriate B.Sc. program in Chemistry.

The Major concentration is a planned sequence of courses designed to permit a degree of specialization in this discipline.

**Required Courses**

18 credits

* Note: Required courses taken at CEGEP or elsewhere that are not credited toward the Concurrent B.Sc. and B.Ed. must be replaced by courses from the Complementary Course List equal to or exceeding their credit value. Regardless of the substitution, students must take at least 36 credits in this program.

CHEM 203  (3)  Survey of Physical Chemistry
CHEM 212  (4)  Introductory Organic Chemistry 1
CHEM 222  (4)  Introductory Organic Chemistry 2
CHEM 253  (1)  Introductory Physical Chemistry 1 Laboratory
CHEM 281  (3)  Inorganic Chemistry 1
CHEM 287  (2)  Introductory Analytical Chemistry
CHEM 297  (1)  Introductory Analytical Chemistry Laboratory

**Complementary Courses**

18 credits selected from:

CHEM 219  (3)  Introduction to Atmospheric Chemistry
CHEM 263  (1)  Introductory Physical Chemistry 2 Laboratory
CHEM 302  (3)  Introductory Organic Chemistry 3
CHEM 307  (3)  Analytical Chemistry of Pollutants
CHEM 334  (3)  Advanced Materials
Chemistry (24 credits)

Required Courses
15 credits
CHEM 367 (3) Instrumental Analysis 1
CHEM 381 (3) Inorganic Chemistry 2
CHEM 382 (3) Organic Chemistry: Natural Products
CHEM 531 (3) Chemistry of Inorganic Materials
CHEM 571 (3) Polymer Synthesis
CHEM 582 (3) Supramolecular Chemistry
CHEM 591 (3) Bioinorganic Chemistry

Minor Biology (24 credits)

Required Courses
15 credits
BIOL 200 (3) Molecular Biology
BIOL 201 (3) Cell Biology and Metabolism
BIOL 202 (3) Basic Genetics
BIOL 205 (3) Biology of Organisms
BIOL 215 (3) Introduction to Ecology and Evolution

Complementary Courses
9 credits selected from the Biology Department's course offerings, at the 300 level or above.

Additional Science Courses (9 credits)

BIOL 210 (3) Perspectives of Science
MATH 203 (3) Principles of Statistics 1
MATH 222 (3) Calculus 3

Electives (6 credits)

6 credits, of which at least 3 credits must be Science Electives.
The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.

5.10.15 Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Chemistry with Minor Physics for Teachers (135 credits)

The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Chemistry with Minor Physics for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfill all the requirements for graduation for both the B.Sc. and the B.Ed.

Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

The Major Concentration Chemistry with Minor Physics is one of the nine variations of the program and allows students to focus their Science degree in Chemistry with a subspecialization in Physics.

To fulfill the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:

(30 credits of Science Freshman Program (for students admitted without basic sciences))
60 credits of Education Component
69 credits of Science Component consisting of:
- 36 credits of the Major Concentration Chemistry
- 18 credits of the Minor Physics
- 15 credits of Additional Science Courses

6 credits of Electives, of which at least 3 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.

For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

**B.Sc. Freshman Program**

Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUA) to obtain advice and approval of their course selection. Full details are available on the SOUSA website at http://www.mcgill.ca/science/sousa. Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.

Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science courses, selected as follows:

**General Math and Science Breadth**

Six of the Freshman courses must satisfy one of the following:

Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;

or

Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

**Science Complementary**

The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:

1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.

2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.

3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/specific/.

4. The maximum number of courses per term, required, complementary, and elective, is five.

**List of Approved Freshman Science Courses**

Select the approved courses according to the instructions above.

Note:

* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)

* CHEM 120 (not open to students who have taken CHEM 115)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 111</td>
<td>(3)</td>
<td>Principles: Organismal Biology</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>(3)</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>(4)</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 115*</td>
<td>(4)</td>
<td>Accelerated General Chemistry: Giants in Science</td>
</tr>
<tr>
<td>CHEM 120*</td>
<td>(4)</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>COMP 202</td>
<td>(3)</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>ESYS 104</td>
<td>(3)</td>
<td>The Earth System</td>
</tr>
<tr>
<td>MATH 133</td>
<td>(3)</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>PSYC 100</td>
<td>(3)</td>
<td>Introduction to Psychology</td>
</tr>
</tbody>
</table>

First calculus course, one of:
Calculus 1 with Precalculus (4) MATH 139
Calculus 1 (3) MATH 140
Calculus A (4) MATH 150

Second calculus course, one of:
- Calculus 2 (4) MATH 141
- Calculus B (4) MATH 151

First physics course, one of:
- Introductory Physics - Mechanics (4) PHYS 101
- Mechanics and Waves (4) PHYS 131

Second physics course, one of:
- Introductory Physics - Electromagnetism (4) PHYS 102
- Electromagnetism and Optics (4) PHYS 142

Electives
Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/approved/. Certain courses offered by other faculties may also be taken, but some restrictions apply.

Consult the SOUSA website at http://www.mcgill.ca/science/sousa/continuing_students/bsc/outside/ for more information about taking courses from other faculties.

Education Component (60 credits)
60 credits of Education Component, consisting of:
- 54 credits of required courses
- 6 credits of complementary courses

Required Courses
54 credits
* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman year.

- First Year Professional Seminar (1) EDEC 201
- English Language Requirement (0) EDEC 215
- Policy Issues in Quebec Education (3) EDEC 247*
- Second Professional Seminar (Secondary) (1) EDEC 254
- Media, Technology and Education (3) EDEC 262*
- Third Professional Seminar (Secondary) (2) EDEC 351
- Fourth Year Professional Seminar (Sec) (3) EDEC 404
- Teaching Secondary Science 1 (3) EDES 335
- Classroom Practices (Secondary) (3) EDES 350
- Teaching Secondary Science 2 (3) EDES 435
EDFE 200  (2)  First Field Experience (K/Elem & Secondary)
EDFE 254  (3)  Second Field Experience (Secondary)
EDFE 351  (8)  Third Field Experience (Secondary)
EDFE 451  (7)  Fourth Field Experience (Secondary)
EDPE 300*  (3)  Educational Psychology
EDPE 304  (3)  Measurement and Evaluation
EDPI 309*  (3)  Exceptional Students
EDPI 341  (3)  Instruction in Inclusive Schools

**Complementary Courses**

6 credits selected as follows:

* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the three following courses:

- EDEC 233*  (3)  First Nations and Inuit Education
- EDEC 248*  (3)  Multicultural Education
- EDEC 249*  (3)  Global Education and Social Justice

3 credits, one of the two following courses:

- EDEC 260*  (3)  Philosophical Foundations
- EDEC 261*  (3)  Philosophy of Catholic Education

**Major Concentration Chemistry (36 credits)**

The Major Concentration Chemistry is not certified by the Ordre des Chimistes du Québec. Students interested in pursuing a career in Chemistry in Quebec are advised to take an appropriate B.Sc. program in Chemistry.

The Major concentration is a planned sequence of courses designed to permit a degree of specialization in this discipline.

**Required Courses**

18 credits selected as follows:

* Note: Required courses taken at CEGEP or elsewhere that are not credited toward the Concurrent B.Sc. and B.Ed. must be replaced by courses from the Complementary Course List equal to or exceeding their credit value. Regardless of the substitution, students must take at least 36 credits in this program.

- CHEM 203  (3)  Survey of Physical Chemistry
- CHEM 212  (4)  Introductory Organic Chemistry 1
- CHEM 222  (4)  Introductory Organic Chemistry 2
- CHEM 253  (1)  Introductory Physical Chemistry 1 Laboratory
- CHEM 281  (3)  Inorganic Chemistry 1
- CHEM 287  (2)  Introductory Analytical Chemistry
- CHEM 297  (1)  Introductory Analytical Chemistry Laboratory

**Complementary Courses**

18 credits selected from:

- CHEM 219  (3)  Introduction to Atmospheric Chemistry
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 263</td>
<td>1</td>
<td>Introductory Physical Chemistry 2 Laboratory</td>
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<tr>
<td>CHEM 302</td>
<td>3</td>
<td>Introductory Organic Chemistry 3</td>
</tr>
<tr>
<td>CHEM 307</td>
<td>3</td>
<td>Analytical Chemistry of Pollutants</td>
</tr>
<tr>
<td>CHEM 334</td>
<td>3</td>
<td>Advanced Materials</td>
</tr>
<tr>
<td>CHEM 367</td>
<td>3</td>
<td>Instrumental Analysis 1</td>
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<td>CHEM 381</td>
<td>3</td>
<td>Inorganic Chemistry 2</td>
</tr>
<tr>
<td>CHEM 382</td>
<td>3</td>
<td>Organic Chemistry: Natural Products</td>
</tr>
<tr>
<td>CHEM 531</td>
<td>3</td>
<td>Chemistry of Inorganic Materials</td>
</tr>
<tr>
<td>CHEM 571</td>
<td>3</td>
<td>Polymer Synthesis</td>
</tr>
<tr>
<td>CHEM 582</td>
<td>3</td>
<td>Supramolecular Chemistry</td>
</tr>
<tr>
<td>CHEM 591</td>
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<td>Bioinorganic Chemistry</td>
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</table>

**Minor Physics (18 credits)**

**Required Course**

3 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PHYS 257</td>
<td>3</td>
<td>Experimental Methods 1</td>
</tr>
</tbody>
</table>

**Complementary Courses**

15 credits to be selected as follows:

One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>PHYS 230</td>
<td>3</td>
<td>Dynamics of Simple Systems</td>
</tr>
<tr>
<td>PHYS 251</td>
<td>3</td>
<td>Honours Classical Mechanics 1</td>
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One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 232</td>
<td>3</td>
<td>Heat and Waves</td>
</tr>
<tr>
<td>PHYS 253</td>
<td>3</td>
<td>Thermal Physics</td>
</tr>
</tbody>
</table>

One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 241</td>
<td>3</td>
<td>Signal Processing</td>
</tr>
<tr>
<td>PHYS 258</td>
<td>3</td>
<td>Experimental Methods 2</td>
</tr>
</tbody>
</table>

One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 214</td>
<td>3</td>
<td>Introductory Astrophysics</td>
</tr>
<tr>
<td>PHYS 224</td>
<td>3</td>
<td>Physics of Music</td>
</tr>
<tr>
<td>PHYS 260</td>
<td>3</td>
<td>Modern Physics and Relativity</td>
</tr>
<tr>
<td>PHYS 271</td>
<td>3</td>
<td>Introduction to Quantum Physics</td>
</tr>
</tbody>
</table>

One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 340</td>
<td>3</td>
<td>Majors Electricity and Magnetism</td>
</tr>
</tbody>
</table>
Honours Electricity and Magnetism

Additional Science Courses (15 credits)

BIOL 210 (3) Perspectives of Science
MATH 203 (3) Principles of Statistics 1
MATH 222 (3) Calculus 3
MATH 223 (3) Linear Algebra
MATH 314 (3) Advanced Calculus

Electives (6 credits)

6 credits, of which at least 3 credits must be Science Electives. The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.

5.10.16 Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Physics with Minor Biology for Teachers (135 credits)

The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Physics with Minor Biology for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfill all the requirements for graduation for both the B.Sc. and the B.Ed.

Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

The Major Concentration Physics with Minor Biology is one of the nine variations of the program and allows students to focus their Science degree in Physics with a subspecialization in Biology.

To fulfill the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:

- 30 credits of Science Freshman Program (for students admitted without basic sciences)
- 60 credits of Education Component
- 69 credits of Science Component consisting of:
  - 36 credits of Major Concentration Physics
  - 24 credits of Minor Biology
  - 9 credits of Additional Science Courses
- 6 credits of Electives, of which at least 3 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.

For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

B.Sc. Freshman Program

Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUA) to obtain advice and approval of their course selection. Full details are available on the SOUSA website at http://www.mcgill.ca/science/sousa. Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.

Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science courses, selected as follows:

General Math and Science Breadth

Six of the Freshman courses must satisfy one of the following:

Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;

or

Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.
Science Complementary
The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:
1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.
2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.
3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/specific/.
4. The maximum number of courses per term, required, complementary, and elective, is five.

List of Approved Freshman Science Courses
Select the approved courses according to the instructions above.

Note:
* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)
* CHEM 120 (not open to students who have taken CHEM 115)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BIOL 111</td>
<td>3</td>
<td>Principles: Organismal Biology</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>3</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>4</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 115*</td>
<td>4</td>
<td>Accelerated General Chemistry: Giants in Science</td>
</tr>
<tr>
<td>CHEM 120*</td>
<td>4</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>COMP 202</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>ESYS 104</td>
<td>3</td>
<td>The Earth System</td>
</tr>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>PSYC 100</td>
<td>3</td>
<td>Introduction to Psychology</td>
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First calculus course, one of:
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>MATH 139</td>
<td>4</td>
<td>Calculus 1 with Precalculus</td>
</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 150</td>
<td>4</td>
<td>Calculus A</td>
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Second calculus course, one of:
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>MATH 151</td>
<td>4</td>
<td>Calculus B</td>
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First physics course, one of:
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<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 101</td>
<td>4</td>
<td>Introductory Physics - Mechanics</td>
</tr>
<tr>
<td>PHYS 131</td>
<td>4</td>
<td>Mechanics and Waves</td>
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</table>

Second physics course, one of:
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 102</td>
<td>4</td>
<td>Introductory Physics - Electromagnetism</td>
</tr>
<tr>
<td>PHYS 142</td>
<td>4</td>
<td>Electromagnetism and Optics</td>
</tr>
</tbody>
</table>
Electives
Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at [http://www.mcgill.ca/science/sousa/new_students/ulib/bsc_freshman/approved/](http://www.mcgill.ca/science/sousa/new_students/ulib/bsc_freshman/approved/). Certain courses offered by other faculties may also be taken, but some restrictions apply.


Education Component (60 credits)
60 credits of Education Component, consisting of:
54 credits of required courses
6 credits of complementary courses

Required Courses
54 credits
* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman year.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>EDEC 201</td>
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<td>First Year Professional Seminar</td>
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<tr>
<td>EDEC 215</td>
<td>0</td>
<td>English Language Requirement</td>
</tr>
<tr>
<td>EDEC 247*</td>
<td>3</td>
<td>Policy Issues in Quebec Education</td>
</tr>
<tr>
<td>EDEC 254</td>
<td>1</td>
<td>Second Professional Seminar (Secondary)</td>
</tr>
<tr>
<td>EDEC 262*</td>
<td>3</td>
<td>Media, Technology and Education</td>
</tr>
<tr>
<td>EDEC 351</td>
<td>2</td>
<td>Third Professional Seminar (Secondary)</td>
</tr>
<tr>
<td>EDEC 404</td>
<td>3</td>
<td>Fourth Year Professional Seminar (Sec)</td>
</tr>
<tr>
<td>EDES 335</td>
<td>3</td>
<td>Teaching Secondary Science 1</td>
</tr>
<tr>
<td>EDES 350</td>
<td>3</td>
<td>Classroom Practices (Secondary)</td>
</tr>
<tr>
<td>EDES 435</td>
<td>3</td>
<td>Teaching Secondary Science 2</td>
</tr>
<tr>
<td>EDFE 200</td>
<td>2</td>
<td>First Field Experience (K/Elem &amp; Secondary)</td>
</tr>
<tr>
<td>EDFE 254</td>
<td>3</td>
<td>Second Field Experience (Secondary)</td>
</tr>
<tr>
<td>EDFE 351</td>
<td>8</td>
<td>Third Field Experience (Secondary)</td>
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<tr>
<td>EDFE 451</td>
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<td>Fourth Field Experience (Secondary)</td>
</tr>
<tr>
<td>EDPE 300*</td>
<td>3</td>
<td>Educational Psychology</td>
</tr>
<tr>
<td>EDPE 304</td>
<td>3</td>
<td>Measurement and Evaluation</td>
</tr>
<tr>
<td>EDPI 309*</td>
<td>3</td>
<td>Exceptional Students</td>
</tr>
<tr>
<td>EDPI 341</td>
<td>3</td>
<td>Instruction in Inclusive Schools</td>
</tr>
</tbody>
</table>

Complementary Courses
6 credits selected as follows:
* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 233*</td>
<td>3</td>
<td>First Nations and Inuit Education</td>
</tr>
<tr>
<td>EDEC 248*</td>
<td>3</td>
<td>Multicultural Education</td>
</tr>
<tr>
<td>EDEC 249*</td>
<td>3</td>
<td>Global Education and Social Justice</td>
</tr>
</tbody>
</table>
3 credits, one of the two following courses:

- EDEC 260* (3) Philosophical Foundations
- EDEC 261* (3) Philosophy of Catholic Education

**Major Concentration Physics (36 credits)**

The Major Concentration Physics is a planned sequence of courses designed to permit a degree of specialization in this discipline.

**Required Courses**

30 credits selected as follows:

* Note: Required courses taken at CEGEP or elsewhere that are not credited toward the Concurrent B.Sc. and B.Ed. must be replaced by courses from the Complementary Course List equal to or exceeding their credit value. Regardless of the substitution, students must take at least 36 credits in this program.

- MATH 222 (3) Calculus 3
- MATH 223 (3) Linear Algebra
- MATH 314 (3) Advanced Calculus
- MATH 315 (3) Ordinary Differential Equations
- PHYS 230 (3) Dynamics of Simple Systems
- PHYS 232 (3) Heat and Waves
- PHYS 257 (3) Experimental Methods 1
- PHYS 333 (3) Thermal and Statistical Physics
- PHYS 340 (3) Majors Electricity and Magnetism
- PHYS 446 (3) Majors Quantum Physics

**Complementary Courses**

6 credits selected from:

- PHYS 214 (3) Introductory Astrophysics
- PHYS 224 (3) Physics of Music
- PHYS 241 (3) Signal Processing
- PHYS 258 (3) Experimental Methods 2
- PHYS 334 (3) Advanced Materials
- PHYS 534 (3) Nanoscience and Nanotechnology

or any 300- or 400-level course approved by an adviser.

**Minor Biology (24 credits)**

24-25 credits for the Minor Biology selected as follows:

15 credits of required courses
9-10 credits of complementary courses

**Required Courses**

15 credits

- BIOL 200 (3) Molecular Biology
- BIOL 201 (3) Cell Biology and Metabolism
- BIOL 202 (3) Basic Genetics
BIOL 205 (3) Biology of Organisms
BIOL 215 (3) Introduction to Ecology and Evolution

Complementary Courses
9-10 credits of complementary courses, CHEM 212 and 6 selected from the Biology Department's course offerings, at the 300 level or above.
* Note: Students who have already taken CHEM 212 or its equivalent will choose another appropriate course, to be approved by the Adviser.
CHEM 212* (4) Introductory Organic Chemistry 1

Additional Science Courses (9 credits)
9 credits selected as follows:
6 credits:
BIOL 210 (3) Perspectives of Science
MATH 203 (3) Principles of Statistics 1

plus 3 credits, one additional Physics (PHYS) course approved by the Physics Department.

Electives (6 credits)
6 credits, of which at least 3 credits must be Science Electives.
The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.

5.10.17 Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Physics with Minor Chemistry for Teachers (135 credits)
The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Physics with Minor Chemistry for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfill all the requirements for graduation for both the B.Sc. and the B.Ed.
Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".
The Major Concentration Physics with Minor Chemistry is one of the nine variations of the program and allows students to focus their Science degree in Physics with a subspecialization in Chemistry.

To fulfill the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:
(30 credits of Science Freshman Program (for students admitted without basic sciences))
60 credits of Education Component
69 credits of Science Component consisting of:
- 36 credits of the Major Concentration Physics
- 18 credits of the Minor Chemistry
- 15 credits of Additional Science Courses
6 credits of Electives, of which at least 3 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.
For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

B.Sc. Freshman Program
Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUA) to obtain advice and approval of their course selection. Full details are available on the SOUSA website at http://www.mcgill.ca/science/sousa. Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.
Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science courses, selected as follows:

**General Math and Science Breadth**
Six of the Freshman courses must satisfy one of the following:
Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;
or
Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

**Science Complementary**
The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:
1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.
2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.
3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/specific/.
4. The maximum number of courses per term, required, complementary, and elective, is five.

**List of Approved Freshman Science Courses**
Select the approved courses according to the instructions above.

Note:
* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)
* CHEM 120 (not open to students who have taken CHEM 115)

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<tr>
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<td>(3)</td>
<td>Principles: Organismal Biology</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>(3)</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>(4)</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 115*</td>
<td>(4)</td>
<td>Accelerated General Chemistry: Giants in Science</td>
</tr>
<tr>
<td>CHEM 120*</td>
<td>(4)</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>COMP 202</td>
<td>(3)</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>ESYS 104</td>
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<td>The Earth System</td>
</tr>
<tr>
<td>MATH 133</td>
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<td>PSYC 100</td>
<td>(3)</td>
<td>Introduction to Psychology</td>
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</table>

First calculus course, one of:

<table>
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<td>(4)</td>
<td>Calculus 1 with Precalculus</td>
</tr>
<tr>
<td>MATH 140</td>
<td>(3)</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 150</td>
<td>(4)</td>
<td>Calculus A</td>
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</table>

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<th>Description</th>
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</thead>
<tbody>
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<td>(4)</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>MATH 151</td>
<td>(4)</td>
<td>Calculus B</td>
</tr>
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</table>

First physics course, one of:

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<tr>
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<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 101</td>
<td>(4)</td>
<td>Introductory Physics - Mechanics</td>
</tr>
</tbody>
</table>
Mechanics and Waves (4) PHYS 131

Second physics course, one of:

PHYS 102 (4) Introductory Physics - Electromagnetism
PHYS 142 (4) Electromagnetism and Optics

**Electives**

Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at [http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/approved/](http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/approved/). Certain courses offered by other faculties may also be taken, but some restrictions apply.


**Education Component (60 credits)**

60 credits of Education Component, consisting of:

54 credits of required courses
6 credits of complementary courses

**Required Courses**

54 credits

* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman year.

- **EDEC 201** (1) First Year Professional Seminar
- **EDEC 215** (0) English Language Requirement
- **EDEC 247*** (3) Policy Issues in Quebec Education
- **EDEC 254** (1) Second Professional Seminar (Secondary)
- **EDEC 262*** (3) Media, Technology and Education
- **EDEC 351** (2) Third Professional Seminar (Secondary)
- **EDEC 404** (3) Fourth Year Professional Seminar (Sec)
- **EDES 335** (3) Teaching Secondary Science 1
- **EDES 350** (3) Classroom Practices (Secondary)
- **EDES 435** (3) Teaching Secondary Science 2
- **EDFE 200** (2) First Field Experience (K/Elem & Secondary)
- **EDFE 254** (3) Second Field Experience (Secondary)
- **EDFE 351** (8) Third Field Experience (Secondary)
- **EDFE 451** (7) Fourth Field Experience (Secondary)
- **EDPE 300*** (3) Educational Psychology
- **EDPE 304** (3) Measurement and Evaluation
- **EDPI 309*** (3) Exceptional Students
- **EDPI 341** (3) Instruction in Inclusive Schools

**Complementary Courses**

6 credits selected as follows:
* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the three following courses:

- EDEC 233* (3) First Nations and Inuit Education
- EDEC 248* (3) Multicultural Education
- EDEC 249* (3) Global Education and Social Justice

3 credits, one of the two following courses:

- EDEC 260* (3) Philosophical Foundations
- EDEC 261* (3) Philosophy of Catholic Education

Major Concentration Physics (36 credits)

The Major Concentration Physics is a planned sequence of courses designed to permit a degree of specialization in this discipline.

Required Courses*

30 credits

* Note: Required courses taken at CEGEP or elsewhere that are not credited toward the Concurrent B.Sc. and B.Ed. must be replaced by courses from the Complementary Course List equal to or exceeding their credit value. Regardless of the substitution, students must take at least 36 credits in this program.

- MATH 222 (3) Calculus 3
- MATH 223 (3) Linear Algebra
- MATH 314 (3) Advanced Calculus
- MATH 315 (3) Ordinary Differential Equations
- PHYS 230 (3) Dynamics of Simple Systems
- PHYS 232 (3) Heat and Waves
- PHYS 257 (3) Experimental Methods 1
- PHYS 333 (3) Thermal and Statistical Physics
- PHYS 340 (3) Majors Electricity and Magnetism
- PHYS 446 (3) Majors Quantum Physics

Complementary Courses

6 credits selected from:

- PHYS 214 (3) Introductory Astrophysics
- PHYS 224 (3) Physics of Music
- PHYS 241 (3) Signal Processing
- PHYS 258 (3) Experimental Methods 2
- PHYS 334 (3) Advanced Materials
- PHYS 534 (3) Nanoscience and Nanotechnology

or any 300- or 400-level course approved by an adviser.

Minor Chemistry (18 credits)

Required Courses
18 credits selected as follows:
* denotes courses with CEGEP equivalents.

Substitutions for these by more advanced courses may be made at the discretion of the Adviser.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 203</td>
<td>3</td>
<td>Survey of Physical Chemistry</td>
</tr>
<tr>
<td>CHEM 212*</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 222*</td>
<td>4</td>
<td>Introductory Organic Chemistry 2</td>
</tr>
<tr>
<td>CHEM 253</td>
<td>1</td>
<td>Introductory Physical Chemistry 1 Laboratory</td>
</tr>
<tr>
<td>CHEM 281</td>
<td>3</td>
<td>Inorganic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 287</td>
<td>2</td>
<td>Introductory Analytical Chemistry</td>
</tr>
<tr>
<td>CHEM 297</td>
<td>1</td>
<td>Introductory Analytical Chemistry Laboratory</td>
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</table>

Additional Science Courses (15 credits)

15 credits selected as follows:

9 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 210</td>
<td>3</td>
<td>Perspectives of Science</td>
</tr>
<tr>
<td>CHEM 381</td>
<td>3</td>
<td>Inorganic Chemistry 2</td>
</tr>
<tr>
<td>MATH 203</td>
<td>3</td>
<td>Principles of Statistics 1</td>
</tr>
</tbody>
</table>

plus 3 credits, one of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 180</td>
<td>3</td>
<td>World of Chemistry: Environment</td>
</tr>
<tr>
<td>CHEM 181</td>
<td>3</td>
<td>World of Chemistry: Food</td>
</tr>
<tr>
<td>CHEM 182</td>
<td>3</td>
<td>World of Chemistry: Technology</td>
</tr>
<tr>
<td>CHEM 183</td>
<td>3</td>
<td>World of Chemistry: Drugs</td>
</tr>
</tbody>
</table>

plus 3 credits, one additional Physics (PHYS) course approved by the Physics Department.

Electives (6 credits)

6 credits, of which at least 3 credits must be Science Electives.

The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.

5.10.18 Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Mathematics for Teachers (135 credits)

The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Mathematics for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfill all the requirements for graduation for both the B.Sc. and the B.Ed.

Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

The Major Mathematics is one of the nine variations of the program and allows students to focus their Science degree in Mathematics.

To fulfill the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:

(30 credits of Science Freshman Program (for students admitted without basic sciences))

60 credits of Education Component

54 credits of Science Component consisting of:

- 54 credits of the Major Mathematics
21 credits of Electives, of which at least 18 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.

For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

**B.Sc. Freshman Program**

Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUSA) to obtain advice and approval of their course selection. Full details are available on the SOUSA website at http://www.mcgill.ca/science/sousa. Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.

Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science Courses, selected as follows:

**General Math and Science Breadth**

Six of the Freshman courses must satisfy one of the following:

Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;

or

Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

**Science Complementary**

The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:

1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.

2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.

3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/specific/.

4. The maximum number of courses per term, required, complementary, and elective, is five.

**List of Approved Freshman Science Courses**

Select the approved courses according to the instructions above.

Note:

* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)

* CHEM 120 (not open to students who have taken CHEM 115)

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>BIOL 111</td>
<td>3</td>
<td>Principles: Organismal Biology</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>3</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>4</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 115*</td>
<td>4</td>
<td>Accelerated General Chemistry: Giants in Science</td>
</tr>
<tr>
<td>CHEM 120*</td>
<td>4</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>COMP 202</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>ESYS 104</td>
<td>3</td>
<td>The Earth System</td>
</tr>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
</tr>
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<td>PSYC 100</td>
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<td>Introduction to Psychology</td>
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<td>Introductory Physics - Mechanics</td>
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<td>PHYS 131</td>
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<td>Mechanics and Waves</td>
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<td>Introductory Physics - Electromagnetism</td>
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<td>PHYS 142</td>
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<td>Electromagnetism and Optics</td>
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**Electives**

Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at [http://www.mcgill.ca/science/sousa/new_students/all/bsc_freshman/approved/](http://www.mcgill.ca/science/sousa/new_students/all/bsc_freshman/approved/). Certain courses offered by other faculties may also be taken, but some restrictions apply.


**Education Component (60 credits)**

60 credits of Education Component, consisting of:

- 54 credits of required courses
- 6 credits of complementary courses

**Required Courses**

54 credits

* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman year.

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<tr>
<td>EDEC 215</td>
<td>(0)</td>
<td>English Language Requirement</td>
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<td>EDEC 247*</td>
<td>(3)</td>
<td>Policy Issues in Quebec Education</td>
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<td>EDEC 254</td>
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<td>Fourth Year Professional Seminar (Sec)</td>
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<td>EDES 350</td>
<td>(3)</td>
<td>Classroom Practices (Secondary)</td>
</tr>
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<td>EDES 353</td>
<td>(3)</td>
<td>Teaching Secondary Mathematics 1</td>
</tr>
<tr>
<td>EDES 453</td>
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<td>Teaching Secondary Mathematics 2</td>
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<tr>
<td>EDFE 200</td>
<td>(2)</td>
<td>First Field Experience (K/Elem &amp; Secondary)</td>
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<tr>
<td>EDFE 254</td>
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<td>EDFE 451</td>
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</tbody>
</table>
EDPE 300* (3) Educational Psychology
EDPE 304 (3) Measurement and Evaluation
EDPI 309* (3) Exceptional Students
EDPI 341 (3) Instruction in Inclusive Schools

Complementary Courses

6 credits selected as follows:
* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the three following courses:
EDEC 233* (3) First Nations and Inuit Education
EDEC 248* (3) Multicultural Education
EDEC 249* (3) Global Education and Social Justice

3 credits, one of the two following courses:
EDEC 260* (3) Philosophical Foundations
EDEC 261* (3) Philosophy of Catholic Education

Major Mathematics (54 credits)

Program Prerequisites

Students entering the Major program are normally expected to have completed the courses below or their equivalents. Otherwise they will be required to make up any deficiencies in these courses over and above the 54 credits for the program.

MATH 133 (3) Linear Algebra and Geometry
MATH 140 (3) Calculus 1
MATH 141 (4) Calculus 2

Required Courses

27 credits
Where appropriate, Honours courses may be substituted for equivalent Major courses.
* Students select either MATH 249 or MATH 316 but not both.

MATH 222 (3) Calculus 3
MATH 235 (3) Algebra 1
MATH 236 (3) Algebra 2
MATH 242 (3) Analysis 1
MATH 243 (3) Analysis 2
MATH 249* (3) Honours Complex Variables
MATH 314 (3) Advanced Calculus
MATH 315 (3) Ordinary Differential Equations
MATH 316* (3) Complex Variables
MATH 323 (3) Probability
Complementary Courses
27 credits selected with the following specifications:

12 credits specifically required of students in the Concurrent B.Sc. and B.Ed. Major Mathematics:

COMP 202 (3) Introduction to Computing 1
MATH 324 (3) Statistics
MATH 338 (3) History and Philosophy of Mathematics
MATH 348 (3) Topics in Geometry

at least 3 credits from:

MATH 317 (3) Numerical Analysis
MATH 335 (3) Computational Algebra
MATH 340 (3) Discrete Structures 2

12 credits from:

It is highly recommended that students include MATH 318, MATH 328, MATH 339 and MATH 346 in their complementary courses.

MATH 204 (3) Principles of Statistics 2
MATH 318 (3) Mathematical Logic
MATH 319 (3) Introduction to Partial Differential Equations
MATH 320 (3) Differential Geometry
MATH 326 (3) Nonlinear Dynamics and Chaos
MATH 327 (3) Matrix Numerical Analysis
MATH 328 (3) Computability and Mathematical Linguistics
MATH 329 (3) Theory of Interest
MATH 339 (3) Foundations of Mathematics
MATH 346 (3) Number Theory
MATH 352 (1) Problem Seminar
MATH 407 (3) Dynamic Programming
MATH 410 (3) Majors Project
MATH 417 (3) Mathematical Programming
MATH 423 (3) Regression and Analysis of Variance
MATH 430 (3) Mathematical Finance
MATH 447 (3) Introduction to Stochastic Processes
MATH 523 (4) Generalized Linear Models
MATH 525 (4) Sampling Theory and Applications

In consultation with an adviser, 3 of the 12 credits may be selected from other MATH courses or related disciplines.

Electives (21 credits)

21 credits of electives, of which at least 18 credits must be Science Electives chosen in consultation with the Science Adviser.

The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.
5.10.19 Concurrent Bachelor of Music (B.Mus.) - Major Music Education and Bachelor of Education (B.Ed.) - Music Elementary and Secondary (137 credits)

The Bachelor of Music (B.Mus.) - Major Music Education, when offered concurrently with the Bachelor of Education - Major Music Elementary and Secondary, provides students with the opportunity to obtain a Bachelor of Music degree and a Bachelor of Education degree after the completion of 137 credits, normally five years (172 credits or six years for out-of-province students*). The concurrent program combines academic studies in music, professional studies, and field experience. The two degrees are awarded during the same convocation period.

* Out-of-province students or those who have not completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies prior to commencing the Concurrent program.

To be admitted to the Concurrent program, students must satisfy the regular admission requirements of the Schulich School of Music and Faculty of Education. Normally, students will be admitted to both components of the Concurrent Program simultaneously. Applicants who already hold a Bachelor of Music degree should apply to the Faculty of Education. Students who have completed 30 or more credits in a Bachelor of Music program, exclusive of the Freshman Year for out-of-province students, should apply for admission to the Concurrent program.

All applications for the Concurrent program are to be made to the Admissions Office of the Schulich School of Music.

The B.Mus. Major Music Education program in the Schulich School of Music focuses on the development of the prospective music educator as a musician. This is achieved not only through core music history, theory, musicianship, and performance courses but also through different instrumental, vocal, and conducting techniques courses. Laboratory experiences provide an opportunity to develop facility with basic music rehearsing/teaching techniques, with emphasis on the ability to diagnose and correct technical and musical problems. The B.Ed. Music Elementary and Secondary program in the Faculty of Education focuses on the development of the musician as an educator. This is achieved through courses in educational foundations, music pedagogy and pedagogical support, and a practicum component comprised of four field experiences and supporting professional seminars.

Students who decide to complete only a Bachelor of Music may transfer at any time into the Bachelor of Music, Faculty Program. Students who wish to complete only the Bachelor of Education Music program have the option of doing so after the successful completion of the first two years of the Concurrent Program and MUIN 283 "BMus Concentration Final Examination" or equivalent. They would be required to complete 61 music credits, 6 elective credits, and 55 education credits from the program given below.

The components of the 137-credit Concurrent Bachelor of Music - Major Music Education and Bachelor of Education - Music Elementary and Secondary are as follows:

- 55 professional Education credits
- 70 Music academic credits
- 9 music elective credits
- 3 non-music elective credits

**Program Prerequisites - Freshman Program**

35 credits

**Prerequisite Courses**

35 credits distributed as follows:

- 2 credits (1 credit per term) Assigned Small Ensemble
- 4 credits (2 credits per term) Basic Ensemble Training
- 6 credits of Non-Music Electives
- and 23 credits in the following course list:

Students who can demonstrate through auditions and placement tests that they have mastered the material in any of the courses below will be exempt from them and may proceed to more advanced courses. First-year students enrolled in the Bachelor of Music program who have completed the Quebec Diploma of Collegial Studies (Diplôme d'études collégiales) in a Music concentration or equivalent, or students transferring from other universities or colleges, who have successfully completed a course in the history of Western music, with a grade of C or better, will be exempted from the first-year Western Musical Traditions requirement (MUHL 186).

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUHL 186</td>
<td>3</td>
<td>Western Musical Traditions</td>
</tr>
<tr>
<td>MUIN 180</td>
<td>3</td>
<td>BMus Practical Lessons 1</td>
</tr>
<tr>
<td>MUIN 181</td>
<td>3</td>
<td>BMus Practical Lessons 2</td>
</tr>
<tr>
<td>MUPD 135</td>
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<td>Music as a Profession 1</td>
</tr>
<tr>
<td>MUPD 136</td>
<td>1</td>
<td>Music as a Profession 2</td>
</tr>
<tr>
<td>MUSP 140</td>
<td>2</td>
<td>Musicianship Training 1</td>
</tr>
<tr>
<td>MUSP 141</td>
<td>2</td>
<td>Musicianship Training 2</td>
</tr>
</tbody>
</table>
Musicianship (Keyboard) 1
Musicianship (Keyboard) 2
Theory and Analysis 1
Theory and Analysis 2

Required Music Components (49 credits)

49 credits of required Music courses distributed as follows:
25 credits of Music Education
11 credits of Theory
4 credits of Musicianship
3 credits of Music History
6 credits of Performance

Music Education

25 credits:
MUCT 235 (3) Vocal Techniques
MUGT 215 (1) Basic Conducting Techniques
MUGT 354 (3) Music for Children
MUGT 358 (3) General Music for Adults and Teenagers
MUGT 401 (3) Issues in Music Education
MUIT 202 (3) Woodwind Techniques
MUIT 203 (3) Brass Techniques
MUIT 204 (3) Percussion Techniques
MUIT 356 (3) Jazz Instruction: Philosophy and Techniques

Theory

11 credits:
MUTH 250 (3) Theory and Analysis 3
MUTH 251 (3) Theory and Analysis 4
MUTH 350 (3) Theory and Analysis 5
MUTH 461 (2) Choral and Keyboard Arranging

Musicianship

4 credits:
MUSP 240 (2) Musicianship Training 3
MUSP 241 (2) Musicianship Training 4

Music History

3 credits:
MUHL 286 (3) Critical Thinking About Music

Performance

6 credits:
Complementary Music Components (21 credits)
21 credits of complementary Music courses distributed as follows:
9 credits of Music Education
2 credits of Musicianship
6 credits of Music History
4 credits of Performance

Music Education
3 credits, one of:
MUIT 201 (3) String Techniques
MUIT 250 (3) Guitar Techniques

3 credits, one of:
MUCT 315 (3) Choral Conducting 1
MUIT 315 (3) Instrumental Conducting

3 credits, select EDEA 362 or any course with a prefix of MUIT or MUGT.
EDEA 362 (3) Movement, Music and Communication

Musicianship
2 credits from:
MUSP 324 (2) Musicianship for Strings
MUSP 330 (2) Musicianship for Woodwind
MUSP 335 (2) Musicianship for Brass
MUSP 346 (2) Post-Tonal Musicianship
MUSP 350 (2) Musicianship for Pianists
MUSP 353 (2) Musicianship for Voice
MUSP 354 (2) Introduction to Improvisation and Ornamentation
MUSP 355 (2) Musicianship for Percussion
MUSP 381 (2) Singing Renaissance Notation

Music History
6 credits of courses with a MUHL or a MUPP prefix.

Performance
4 credits from:
MUEN 563 (2) Jazz Vocal Workshop
MUEN 572 (2) Cappella Antica
MUEN 573 (2) Baroque Orchestra
Cappella McGill (2)  
McGill Winds (2)  
Chamber Jazz Ensemble (2)  
Choral Ensembles (2)  
Contemporary Music Ensemble (2)  
Orchestral Ensembles (2)  

Electives (12 credits)  
9 credits of free electives  
3 credits of non-music electives  

Required Education Courses (45 credits)  
* Note: Students take either EDEE 355 or EDPE 304, but not both.  
EDEA 206 (1) 1st Year Professional Seminar  
EDEA 407 (3) Final Year Professional Seminar Music  
EDEA 442 (3) Elementary Music Curriculum and Instruction  
EDEA 472 (3) Secondary Music Curriculum and Instruction  
EDEC 215 (0) English Language Requirement  
EDEC 247 (3) Policy Issues in Quebec Education  
EDEE 355* (3) Classroom-based Evaluation  
EDES 350 (3) Classroom Practices (Secondary)  
EDFE 205 (2) First Field Experience (Music)  
EDFE 208 (3) Second Field Experience (Music)  
EDFE 308 (8) Third Field Experience (Music)  
EDFE 407 (7) Fourth Field Experience (Music)  
EDPE 300 (3) Educational Psychology  
EDPE 304* (3) Measurement and Evaluation  
EDPI 309 (3) Exceptional Students  

Complementary Education Courses (10 credits)  
10 credits distributed as follows:  

3 credits from:  
EDEC 233 (3) First Nations and Inuit Education  
EDEC 248 (3) Multicultural Education  
EDEC 249 (3) Global Education and Social Justice  

1 credit from:  
EDEC 253 (1) Second Professional Seminar (Kindergarten/Elementary)  
EDEC 254 (1) Second Professional Seminar (Secondary)  

3 credits from:
5.10.19.1 Admissions to the Concurrent Bachelor of Music (Major Music Education) and Bachelor of Education in Music Program

Applicants without a completed Bachelor of Music degree who wish to pursue a teacher education degree specializing in Music should apply to the Concurrent Bachelor of Music (Music Education)/Bachelor of Education in Music program. Students who have partially completed a Bachelor of Music program are eligible to apply for Advanced Standing in the Concurrent program.

Application to the Concurrent B.Mus./B.Ed. program may be made online at www.mcgill.ca/applying. Information is available on that site or may be obtained from:

Admissions Office
McGill University
Schulich School of Music
555 Sherbrooke Street West
Montreal, QC H3A 1E3
Telephone: 514-398-4546

Those who have completed a Bachelor of Music degree may apply for Advanced Standing in the Bachelor of Education in Music program in the Faculty of Education. Application to the Bachelor of Education in Music may be made online at www.mcgill.ca/applying. Information is available on that site or may be obtained from:

Enrolment Services
McGill University
Service Point
3415 McTavish Street
Montreal, QC H3A 1Y1
Telephone: 514-398-7878
Fax: 514-398-5544

Program details are available from:

Professor Caroline Riches, Program Director
Department of Integrated Studies in Education
Telephone: 514-398-4527

5.10.20 Bachelor of Education (B.Ed.) - Kindergarten and Elementary Education (120 credits)

The Bachelor of Education (B.Ed.) - Kindergarten and Elementary Education program requires 120 credits and leads to teacher certification. Students who have not completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies prior to commencing the B.Ed. must also complete a minimum of 30 credits of Freshman courses (in addition to the 120 credit program) for a total of 150 credits.

The Kindergarten and Elementary Education program leads to certification to teach children between the ages of 5 and 11 years (kindergarten and elementary school). The program consists of academic and professional courses, as well as studies in pedagogy and educational foundations. Each year of the program provides a school-based practicum.

Please note that graduates of teacher education programs are recommended by the University for Quebec certification to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS). For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

Freshman Program
Students normally complete 30 credits in their Freshman (U0) year.

The Freshman year is the time to take introductory-level courses in the subjects taught in elementary school, as well as to explore areas that are not normally taken as "teachable" subject area courses within B.Ed. programs (e.g. Sociology, Psychology, Political Science, etc.). Students should also investigate the possibility of taking one of the First Year Seminar courses offered by the Faculty of Arts or the Faculty of Science.

In addition, in consultation with the Program Adviser, students may select courses from the recommended course list below or other courses. Included in the list are several French Second Language (FRSL) courses for which placement tests are required to determine the appropriate level. Also recommended are any 100- or 200-level courses with the subject codes of ANTH (Anthropology), ENGL (English), GEOG (Geography), HIST (History), MUAR (Music-Arts Faculty), POLI (Political Science), PSYC (Psychology), RELG (Religious Studies), and SOCI (Sociology). For 200-level courses, information about any required prerequisites is found in the Minerva Class Schedule by “clicking on” the course CRN for registration. Check prerequisites before registering.

### Required Courses (75 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>CEAP 250</td>
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<td>Research Essay &amp; Rhetoric</td>
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<tr>
<td>EDEE 325</td>
<td>3</td>
<td>Children's Literature</td>
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<tr>
<td>EDEM 220</td>
<td>3</td>
<td>Contemporary Issues in Education</td>
</tr>
<tr>
<td>EDES 366</td>
<td>3</td>
<td>Literature for Young Adults</td>
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<td>FRSL 101D1</td>
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<td>MATH 111</td>
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<td>Mathematics for Education Students</td>
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<tr>
<td>RELG 207</td>
<td>3</td>
<td>The Study of World Religions 1</td>
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### Required Courses (75 credits)

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<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>EDEC 247</td>
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<td>Policy Issues in Quebec Education</td>
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<td>EDEC 253</td>
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<td>Second Professional Seminar (Kindergarten/Elementary)</td>
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<td>EDEC 405</td>
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<td>EDEE 223</td>
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<td>Language Arts</td>
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<td>EDEE 230</td>
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<td>Elementary School Mathematics</td>
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<td>EDEE 250</td>
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<td>The Kindergarten Classroom</td>
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<td>EDEE 260</td>
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<td>Reading Methods - Early Childhood</td>
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<td>EDEE 270</td>
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<td>Elementary School Science</td>
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<td>EDEE 275</td>
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<td>Science Teaching</td>
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<td>EDEE 280</td>
<td>3</td>
<td>Geography, History and Citizenship Education</td>
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<tr>
<td>EDEE 282</td>
<td>2</td>
<td>Teaching Social Sciences</td>
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<tr>
<td>EDEE 325</td>
<td>3</td>
<td>Children's Literature</td>
</tr>
<tr>
<td>EDEE 332</td>
<td>3</td>
<td>Teaching Mathematics 1</td>
</tr>
<tr>
<td>EDEE 353</td>
<td>3</td>
<td>Teaching and Learning in the Elementary Classroom</td>
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<td>EDEE 355</td>
<td>3</td>
<td>Classroom-based Evaluation</td>
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<tr>
<td>EDER 360</td>
<td>2</td>
<td>Ethics and Religious Culture (K/Elementary)</td>
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<td>EDFE 200</td>
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<td>First Field Experience (K/Elem &amp; Secondary)</td>
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<td>EDFE 256</td>
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<td>Second Field Experience (Kindergarten/Elementary)</td>
</tr>
<tr>
<td>EDFE 306</td>
<td>8</td>
<td>Third Field Experience (Kindergarten/Elementary)</td>
</tr>
</tbody>
</table>
EDFE 406 (7) Fourth Field Experience (K/Elem)
EDPE 300 (3) Educational Psychology
EDPI 309 (3) Exceptional Students
EDPI 341 (3) Instruction in Inclusive Schools

**Complementary Courses (18 credits)**

18 credits of courses selected as described below.

**Multicultural Education**

3 credits from:
- EDEC 233 (3) First Nations and Inuit Education
- EDEC 248 (3) Multicultural Education
- EDEC 249 (3) Global Education and Social Justice

**Philosophy of Education**

3 credits from:
- EDEC 260 (3) Philosophical Foundations
- EDEC 261 (3) Philosophy of Catholic Education

**Media, Technology, Computers, and Education**

3 credits from:
- EDEC 262 (3) Media, Technology and Education
- EDPT 341* (3) Instructional Programming 1
- EDPT 420* (3) Media Literacy for Education

* Note: Courses identified with an asterisk ("*") are recommended for students with a background in computers or other media applications in education.

**Ethics, Values, or Religion**

3 credits from:
- EDER 309 (3) The Religious Quest
- EDER 395 (3) Moral Values and Human Action
- EDER 473 (3) Living with Insight
- EDER 494 (3) Ethics in Practice
- RELG 207 (3) The Study of World Religions 1

**Kindergarten and Elementary Teaching Methods - Art, Drama, or Music**

3-6 credits from:
- EDEA 332 (3) Art Curriculum and Instruction - Elementary
- EDEA 342 (3) Curriculum and Instruction in Drama Education
- EDEA 345 (3) Music Curriculum and Instruction for Generalists

**Kindergarten & Elementary Teaching Methods - Physical Education or English Second Language**

0-3 credits from:
Students may select both their Methods courses from the list above for Art, Drama, or Music.

* Note: Courses marked with an asterisk ("*") have EDSL 350 "Essentials of English Grammar" as a prerequisite.

EDKP 332 (3) Physical Education Curriculum and Instruction
EDSL 330* (3) Literacy 1: Teaching Reading in ESL
EDSL 447* (3) Methods in TESL 1

Kindergarten & Elementary Education - Subject Areas (21 credits)

21 credits selected in consultation with the Program Adviser as follows:

12 credits in "teachable" subject area courses of the elementary school curriculum from the lists below for Art, English, Ethics and Religious Culture, French, Mathematics, Music, Natural Sciences, Physical Education, and Social Studies.

And

9 credits, 3 credits from each of any three subject areas not chosen above.

No more than 12 credits may be selected from any single course list.

Art

Students may select up to 12 credits from this list and from Art History (ARTH) courses.

EDEA 204 (3) Drawing
EDEA 205 (3) Painting 2
EDEA 241 (3) Basic Art Media for Classroom
EDEA 296 (3) Basic Design
EDEA 304 (3) Painting 3
EDEA 305 (3) Painting 4
EDEA 307 (3) Drawing 2
EDEA 410 (3) Aesthetics and Art for the Classroom
EDEA 496 (3) Sculpture 1
EDEA 497 (3) Sculpture 2

English

Students may select up to 12 credits from this list.

* Note: Starting with the 2009-2010 academic year, EDEE 325 Children's Literature is a required course for the Kindergarten and Elementary Education program and is included in the "Required Courses" list. Students admitted to the program in prior years may select this course as a teachable subject course for English.

CLAS 203 (3) Greek Mythology
COMS 200 (3) History of Communication
COMS 210 (3) Introduction to Communication Studies
COMS 300 (3) Media and Modernity in the 20th Century
COMS 310 (3) Media and Feminist Studies
COMS 320 (3) Media and Empire
COMS 330 (3) Media in Cultural Life
EDEE 325* (3) Children's Literature
EDES 366 (3) Literature for Young Adults
EDSL 350 (3) Essentials of English Grammar
ENGL 200 (3) Survey of English Literature 1
ENGL 201 (3) Survey of English Literature 2
ENGL 204 (3) English Literature and the Bible
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ENGL 215</td>
<td>3</td>
<td>Introduction to Shakespeare</td>
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<tr>
<td>ENGL 225</td>
<td>3</td>
<td>American Literature 1</td>
</tr>
<tr>
<td>ENGL 226</td>
<td>3</td>
<td>American Literature 2</td>
</tr>
<tr>
<td>ENGL 227</td>
<td>3</td>
<td>American Literature 3</td>
</tr>
<tr>
<td>ENGL 228</td>
<td>3</td>
<td>Canadian Literature 1</td>
</tr>
<tr>
<td>ENGL 229</td>
<td>3</td>
<td>Canadian Literature 2</td>
</tr>
<tr>
<td>ENGL 230</td>
<td>3</td>
<td>Introduction to Theatre Studies</td>
</tr>
<tr>
<td>ENGL 237</td>
<td>3</td>
<td>Introduction to Study of a Literary Form</td>
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<tr>
<td>ENGL 279</td>
<td>3</td>
<td>Introduction to Film as Art</td>
</tr>
<tr>
<td>ENGL 280</td>
<td>3</td>
<td>Introduction to Film as Mass Medium</td>
</tr>
<tr>
<td>ENGL 314</td>
<td>3</td>
<td>20th Century Drama</td>
</tr>
<tr>
<td>ENGL 345</td>
<td>3</td>
<td>Literature and Society</td>
</tr>
<tr>
<td>ENGL 347</td>
<td>3</td>
<td>Great Writings of Europe 1</td>
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<tr>
<td>ENGL 349</td>
<td>3</td>
<td>English Literature and Folklore 1</td>
</tr>
<tr>
<td>ENGL 386</td>
<td>3</td>
<td>Fans, Celebrities, Audiences</td>
</tr>
<tr>
<td>ENGL 388</td>
<td>3</td>
<td>Studies in Popular Culture</td>
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<tr>
<td>LING 200</td>
<td>3</td>
<td>Introduction to the Study of Language</td>
</tr>
<tr>
<td>LING 201</td>
<td>3</td>
<td>Introduction to Linguistics</td>
</tr>
</tbody>
</table>

**Ethics and Religious Culture**

Students may select up to 12 credits from this list. Students may also choose other Religious Studies (RELG) courses with the permission of the Program Adviser.

*Note: Courses marked with an asterisk ("*") may be used as Ethics and Religious Culture courses or as Social Studies.*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>EDER 207</td>
<td>3</td>
<td>'Who is Christ?'</td>
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<tr>
<td>EDER 209</td>
<td>3</td>
<td>Search for Authenticity</td>
</tr>
<tr>
<td>EDER 252</td>
<td>3</td>
<td>Understanding and Teaching Jewish Life</td>
</tr>
<tr>
<td>EDER 290</td>
<td>3</td>
<td>Guide to Reading the Bible</td>
</tr>
<tr>
<td>EDER 309</td>
<td>3</td>
<td>The Religious Quest</td>
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<tr>
<td>EDER 394</td>
<td>3</td>
<td>Philosophy of God</td>
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<tr>
<td>EDER 395</td>
<td>3</td>
<td>Moral Values and Human Action</td>
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<tr>
<td>EDER 461</td>
<td>3</td>
<td>Society and Change</td>
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<tr>
<td>EDER 473</td>
<td>3</td>
<td>Living with Insight</td>
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<tr>
<td>EDER 494</td>
<td>3</td>
<td>Ethics in Practice</td>
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<td>JWST 211</td>
<td>3</td>
<td>Jewish Studies 1: Biblical Period</td>
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<td>JWST 240*</td>
<td>3</td>
<td>The Holocaust</td>
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<td>PHIL 200</td>
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<td>Introduction to Philosophy 1</td>
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<td>PHIL 230</td>
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<td>Introduction to Moral Philosophy 1</td>
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<td>PHIL 237</td>
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<td>RELG 203</td>
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<td>Bible and Western Culture</td>
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<td>RELG 204</td>
<td>3</td>
<td>Judaism, Christianity and Islam</td>
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<td>RELG 207</td>
<td>3</td>
<td>The Study of World Religions 1</td>
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<td>RELG 252</td>
<td>3</td>
<td>Hinduism and Buddhism</td>
</tr>
<tr>
<td>RELG 253</td>
<td>3</td>
<td>Religions of East Asia</td>
</tr>
</tbody>
</table>
RELG 256 (3) Women in Judaism and Islam
RELG 270 (3) Religious Ethics and the Environment
RELG 271 (3) Sexual Ethics
WMST 200* (3) Introduction to Women’s Studies

French
Students may choose up to 12 credits of French as a Second Language (FRSL) courses and/or French (FREN) courses.

Mathematics
Students may choose up to 12 credits of Mathematics (MATH) courses at the 200-level or higher.
Note: Students admitted with CEGEP mathematics (or equivalent) may not take MATH 111 for credit. MATH 111 is a recommended course for Freshman students.
MATH 111 (3) Mathematics for Education Students

Music
Students may choose up to 12 credits from this list. Students may also select any Music course with the MUGT, MUHL, MUIT, or MUCT subject codes.
With the permission of the Program Adviser, students without a formal music background may choose courses with the MUAR subject code.
* Note: Courses marked with a single asterisk ("**") require permission from the Schulich School of Music to register.
** Note: Courses marked with two asterisks ("***") require a placement test.
EDEA 314 (3) Instruments in the Classroom
EDEA 341 (3) Listening for Learning
EDEA 352 (3) Music Listening in Education
EDEA 362 (3) Movement, Music and Communication
MUJZ 160* (3) Jazz Materials 1
MUJZ 161* (3) Jazz Materials 2
MUTH 110** (3) Melody and Counterpoint
MUTH 111** (3) Elementary Harmony and Analysis

Natural Sciences
Students may choose up to 12 credits from this list.
ATOC 181 (3) Introduction to Atmospheric Science
ATOC 182 (3) Introduction to Oceanic Sciences
ATOC 184 (3) Science of Storms
ATOC 185 (3) Natural Disasters
BIOL 115 (3) Essential Biology
CHEM 180 (3) World of Chemistry: Environment
CHEM 181 (3) World of Chemistry: Food
CHEM 182 (3) World of Chemistry: Technology
CHEM 183 (3) World of Chemistry: Drugs
EDEE 473 (3) Ecological Studies
EDEE 474 (3) Problems of the Environment
EPSC 180 (3) The Terrestrial Planets
EPSC 181 (3) Environmental Geology
EPSC 185 (3) Natural Disasters
Understanding Planet Earth (EPSC 201)
Space, Time and Matter (PHYS 180)
Everyday Physics (PHYS 181)
Our Evolving Universe (PHYS 182)
The Milky Way Inside and Out (PHYS 183)

**Physical Education**

Students may take up to 12 credits of Physical Education (EDKP) courses from the list with the permission of the Department of Kinesiology and Physical Education.

* Note: EDKP 292 is available as an academic Physical Education course. All other EDKP courses are restricted.

- EDKP 204 (3) Health Education
- EDKP 205 (3) Structural Anatomy
- EDKP 206 (3) Biomechanics of Human Movement
- EDKP 224 (3) Foundations of Movement Education
- EDKP 261 (3) Motor Development
- EDKP 292* (3) Nutrition and Wellness
- EDKP 391 (3) Physiology in Sport and Exercise
- EDKP 495 (3) Scientific Principles of Training
- EDKP 498 (3) Sport Psychology

**Social Studies**

Students may take up to 12 credits from this list below which represents a balance of History (HIST), Geography (GEOG), and Citizenship courses offered by several departments. Anthropology (ANTH) and Sociology (SOCI) courses not on the list below may not be counted as Social Studies courses in the program requirements. Students may take them as electives only.

Students may select additional History courses as follows:
- Any 3 credits in European History
- Any 3 credits in Asian, African, or Latin American History
- Any 3 credits in any topic or field of history

* Note: Courses marked with an asterisk ("*") may be used as Ethics and Religious Culture or Social Studies courses.

- ANTH 202 (3) Comparative Cultures
- ANTH 205 (3) Cultures of the World
- CANS 200 (3) Introduction to the Study of Canada
- CANS 202 (3) Canadian Cultures: Context and Issues
- GEOG 200 (3) Geographical Perspectives: World Environmental Problems
- GEOG 205 (3) Global Change: Past, Present and Future
- GEOG 210 (3) Global Places and Peoples
- GEOG 217 (3) Cities in the Modern World
- HIST 202 (3) Survey: Canada to 1867
- HIST 203 (3) Survey: Canada since 1867
- JWST 240* (3) The Holocaust
- POLI 221 (3) Government of Canada
- POLI 222 (3) Political Process and Behaviour in Canada
- WMST 200* (3) Introduction to Women's Studies
Electives (6 credits)
6 credits

5.10.21 Bachelor of Education (B.Ed.) - Kindergarten and Elementary Education - First Nations and Inuit Studies (120 credits)

The Bachelor of Education (B.Ed.) - Kindergarten and Elementary Education - First Nations and Inuit Studies program requires 120 credits and leads to teacher certification. Interested applicants must contact the office of First Nations and Inuit Education for admission information; please call 514-398-4533.

Students who have not completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies prior to commencing the B.Ed. must also complete a minimum of 30 credits of freshman courses (in addition to the 120 credit program) for a total of 150 credits. Students who are admitted as "mature students" are not required to complete the 30 credits of freshman courses. These students are admitted to U1.

Please note that graduates of teacher education programs are recommended by the University for Quebec Certification to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS). For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

Freshman Program

Students normally complete 30 credits in their Freshman (U0) year.

The Freshman year is the time to take introductory-level courses in the subjects taught in Elementary school, as well as to explore areas that are not normally taken as teachable subject area courses within B.Ed. programs (e.g., Sociology, Psychology, Political Science, etc.).

Students admitted to the First Nations and Inuit Studies program in U0 should consult with their program adviser for guidance on course selection. More information is also found for newly admitted students to the B.Ed. Kindergarten and Elementary Education program on the Faculty of Education website at http://www.mcgill.ca/edu-dise/students/undergraduate/new/#KE.

Required Courses (108 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Course Title</th>
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<tr>
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<tr>
<td>EDEA 243</td>
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<td>Cultural Skills 2</td>
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<tr>
<td>EDEC 201</td>
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<td>EDEE 291</td>
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<td>L2 Learning: Classroom Settings</td>
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**Complementary Courses (12 credits)**

12 credits of courses selected as described below.

**Language - Complementary Component**

6 credits from the following language courses chosen according to language group and fluency:

**Algonquin**

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<td>Algonquin Second Language 2</td>
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<td>EDEE 293</td>
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**Cree**

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**Inuktitut**

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<td>The Dialects of Inuktitut</td>
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<tr>
<td>EDEE 249</td>
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<td>Inuktitut Orthography and Grammar</td>
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**Mi’kmaq**

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**Mohawk**

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<tr>
<td>EDEC 236</td>
<td>3</td>
<td>Mohawk Second Language 2</td>
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</tbody>
</table>
Mohawk Language 1 (EDEE 296, EDEE 297, EDEE 298)
Mohawk Language 2

Naskapi Language 1 (EDEC 227, EDEC 228)
Naskapi Language 2

Media, Technology, Computers and Education - Complementary Component
3 credits from:
EDEC 262 (3) Media, Technology and Education
EDPT 341 (3) Instructional Programming 1
EDPT 420 (3) Media Literacy for Education

Education - Complementary Component
3 credits from:
EDEC 233 (3) First Nations and Inuit Education
EDEC 248 (3) Multicultural Education
EDEC 249 (3) Global Education and Social Justice
EDPC 208 (3) Native Families' Dynamics

Bachelor of Education (B.Ed.) – Kindergarten and Elementary Jewish Studies (120 credits)

Revision, August 2011. Start of revision.

Bachelor of Education (B.Ed.) - Kindergarten and Elementary Jewish Studies program requires 120 credits and leads to teacher certification. Students who have not completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies prior to commencing the B.Ed. must also complete a minimum of 30 credits of freshman courses (in addition to the 120-credit program) for a total of 150 credits.

The Kindergarten and Elementary program leads to certification to teach children between the ages of 5 and 11 years (kindergarten and elementary school). The program consists of academic and professional courses, as well as studies in pedagogy and educational foundations. Each year of the program provides a school-based practicum.

The Jewish Studies option is addressed to students enrolled in the Kindergarten and Elementary program who wish to teach Jewish studies as well as general studies. Students are encouraged to acquire a strong background in Bible, Jewish prayer, Jewish holidays, and Jewish history prior to registering in the option. Students lacking the ability to teach in Hebrew should consider spending a semester at an Israeli university or seek other avenues to improve their language skills.

Please note that graduates of teacher education programs are recommended by the University for Quebec certification to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS). For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

Freshman Program

Students normally complete 30 credits in their Freshman (U0) year.

The Freshman year is the time to take introductory-level courses in the subjects taught in elementary school, as well as to explore areas that are not normally taken as teachable subject area courses within B.Ed. programs (e.g., Sociology, Psychology, Political Science, etc.). Students should also investigate the possibility of taking one of the First Year Seminar courses offered by the Faculty of Arts or the Faculty of Science.

In addition, in consultation with the Program Adviser, students may select courses from the recommended course list below or other courses. Included in the list are several French Second Language (FRSL) courses for which placement tests are required to determine the appropriate level. Also recommended are any 100- or 200-level courses with the subject codes of ANTH (Anthropology), ENGL (English), GEOG (Geography), HIST (History), MUAR (Music-Arts Faculty), POLI (Political Science), PSYC (Psychology), RELG (Religious Studies), and SOCI (Sociology). For 200-level courses, information about any required prerequisites is found in the Minerva Class Schedule by clicking on the course CRN for registration. Check prerequisites before registering.

CEAP 250 (3) Research Essay & Rhetoric
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>EDEE 325</td>
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<td>Children's Literature</td>
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<td>3</td>
<td>Contemporary Issues in Education</td>
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<td>EDES 366</td>
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<td>Literature for Young Adults</td>
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<td>FRSL 101D1</td>
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<td>FRSL 101D2</td>
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<td>Beginners' French</td>
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<td>FRSL 207D1</td>
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<td>Elementary French 01</td>
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<tr>
<td>FRSL 211D1</td>
<td>3</td>
<td>Oral and Written French 1</td>
</tr>
<tr>
<td>FRSL 211D2</td>
<td>3</td>
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</tr>
<tr>
<td>MATH 111</td>
<td>3</td>
<td>Mathematics for Education Students</td>
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<tr>
<td>RELG 207</td>
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**Required Courses (81 credits)**

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<td>Communication in Education</td>
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<td>EDEC 215</td>
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<td>EDEC 247</td>
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<td>Policy Issues in Quebec Education</td>
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<td>EDEC 253</td>
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<td>Second Professional Seminar (Kindergarten/Elementary)</td>
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<td>EDEE 223</td>
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<td>EDEE 250</td>
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<td>The Kindergarten Classroom</td>
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<td>EDEE 260</td>
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<td>Reading Methods - Early Childhood</td>
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<td>EDEE 270</td>
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<td>EDEE 280</td>
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<td>EDER 320</td>
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<td>Visions and Realities of Jewish Education</td>
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<td>EDER 360</td>
<td>2</td>
<td>Ethics and Religious Culture (K/Elementary)</td>
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<td>EDFE 200</td>
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<td>3</td>
<td>Instruction in Inclusive Schools</td>
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<tr>
<td>JWST 211</td>
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<td>Jewish Studies 1: Biblical Period</td>
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**Complementary Courses (36 credits)**

854
Teaching Methods (12 credits)

3 credits from:

- EDEA 332 (3) Art Curriculum and Instruction - Elementary
- EDEA 342 (3) Curriculum and Instruction in Drama Education
- EDEA 345 (3) Music Curriculum and Instruction for Generalists

9 credits from:

- EDER 252 (3) Understanding and Teaching Jewish Life
- EDER 318 (3) Teaching the Jewish Liturgy
- EDER 319 (3) Teaching the Holocaust
- EDER 401 (3) Teaching Biblical Literature - Jewish School 1

Media, Technology, Computers and Education (3 credits)

3 credits from:

* Note: Courses identified with an asterisk ("*"") are recommended for students with a background in computers or other media applications in education.

- EDEC 262 (3) Media, Technology and Education
- EDPT 341* (3) Instructional Programming 1
- EDPT 420* (3) Media Literacy for Education

Multicultural Education (3 credits)

3 credits from:

- EDEC 233 (3) First Nations and Inuit Education
- EDEC 248 (3) Multicultural Education
- EDEC 249 (3) Global Education and Social Justice

Kindergarten and Elementary Jewish Studies - Subject Area - Group 1 (12 credits)

In consultation with the Jewish Studies option Program Adviser, students select 12 credits from the course sets below with no more than one 3-credit course from each set.

3 credits of:

- JWST 345 (3) Introduction to Rabbinic Literature
- RELG 306 (3) Rabbinic Judaism

3 credits of:

- JWST 314 (3) Denominations in North American Judaism
- SOCI 327 (3) Jews in North America

3 credits of:

- JWST 365 (3) Modern Jewish Ideologies
- JWST 366 (3) History of Zionism
3 credits of:

- POLI 347 (3) Arab-Israel Conflict, Crisis, Peace
- POLI 437 (3) Politics in Israel

3 credits of:

- HIST 207 (3) Jewish History: 400 B.C.E. to 1000
- JWST 216 (3) Jewish Studies 2: 400 B.C.E. - 1000

3 credits of:

- HIST 219 (3) Jewish History: 1000 - 2000
- JWST 217 (3) Jewish Studies 3: 1000 - 2000

3 credits of:

- JWST 367 (3) Studies in Hebrew Language and Literature
- JWST 368 (3) Studies in Hebrew Language and Literature
- JWST 369 (3) Studies in Hebrew Language and Literature
- JWST 370 (3) Studies in Hebrew Language and Literature

**Kindergarten and Elementary Jewish Studies - Subject Area - Group 2 (6 credits)**

Students select 6 credits from the courses below.

* Note: Only one of the three courses identified with an asterisk ("*") may be selected.

- JWST 327 (3) A Book of the Bible
- JWST 328 (3) A Book of the Bible
- JWST 329 (3) A Book of the Bible
- JWST 330 (3) A Book of the Bible
- JWST 331* (3) Bible Interpretation/Medieval Ashkenaz
- JWST 332* (3) Bible Interpretation/Sefardic Tradition
- JWST 510* (3) Jewish Bible Interpretation 1

**Electives (3 credits)**

3 credits

*Revision, August 2011. End of revision.*

5.10.22.1 Bachelor of Education Kindergarten and Elementary Program (Jewish Studies Option)

Students who wish to follow this option must contact:

Professor Eric Caplan
Department of Integrated Studies in Education
Faculty of Education
Telephone: 514-398-6544
Email: eric.caplan@mcgill.ca
5.10.23 Bachelor of Education (B.Ed.) – Kindergarten and Elementary Pédagogie de l'Immersion Française (120 credits)

Revision, August 2011. Start of revision.

The Major Pédagogie de l’Immersion Française is designed to meet the needs of students enrolled in the B.Ed. Kindergarten and Elementary program who wish to teach in French immersion contexts. It consists of 30 credits of French and second language education courses embedded within the regular B.Ed. Kindergarten and Elementary program. In addition, certain other course sections may be offered in French.

Competency in French

Students wishing to follow the PIF major must demonstrate a sufficient level of competency in French by passing the written and oral French Language Proficiency Test (FLPT) set by the Department of Integrated Studies in Education. Students should contact advisedise.education@mcgill.ca to indicate their desire to transfer into this major and will subsequently be contacted with a testing date. The test must be passed for the transfer to be accepted/processed.

For further information about the PIF major and/or the FLPT, please contact the Department at 514-398-4527.

Required Courses (93 credits)

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<td>EDSL 341</td>
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* Note: At least one of these Field Experiences must be completed in a French immersion setting.

** Sections may be taken in French.
Kindergarten and Elementary Teaching Methods

EDSL 345  (3)  Enseignement du FLS-immersion
EDSL 444  (3)  Laboratoire d'enseignement en français langue seconde

Complementary Courses (24 credits)
24 credits selected as described below:

Multicultural Education
3 credits from:

EDEC 233  (3)  First Nations and Inuit Education
EDEC 248  (3)  Multicultural Education
EDEC 249  (3)  Global Education and Social Justice

Philosophy of Education
3 credits from:

EDEC 260  (3)  Philosophical Foundations
EDEC 261  (3)  Philosophy of Catholic Education

Media, Technology, Computers, and Education
3 credits from:

EDEC 262  (3)  Media, Technology and Education
EDPT 200  (3)  Integrating Educational Technology in Classrooms
EDPT 204  (3)  Educational Media 1
EDPT 341*  (3)  Instructional Programming 1
EDPT 420*  (3)  Media Literacy for Education

* Note: these courses are recommended for students with a background in computers or other media applications in education.

Ethics and Religious Culture
3 credits from:

EDER 309  (3)  The Religious Quest
EDER 395  (3)  Moral Values and Human Action
EDER 473  (3)  Living with Insight
EDER 494  (3)  Ethics in Practice
RELG 207  (3)  The Study of World Religions 1

French
12 credits selected from courses with a FREN prefix

Elective Courses (3 credits)
The following courses are suggested:

EDEA 332  (3)  Art Curriculum and Instruction - Elementary
EDEA 342  (3)  Curriculum and Instruction in Drama Education
Music Curriculum and Instruction for Generalists (EDEA 345)
Physical Education Curriculum and Instruction (EDKP 332)
Mathematics for Education Students (MATH 111)

Revision, August 2011. End of revision.

Bachelor of Education (B.Ed.) - Teaching French as a Second Language - TFSL - Joint Program with the Université de Montréal (120 credits)

(No admission for 2011-12)

The Bachelor of Education - Teaching French as a Second Language - Joint Program with the Université de Montréal (Baccalauréat en enseignement du français langue seconde) requires 120 credits and leads to teacher certification. Students who have not completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies prior to commencing the B.Ed. must also complete a minimum of 30 credits of Freshman courses (in addition to the 120-credit program) for a total of 150 credits.

This jointly offered program prepares specialist teachers to teach French as a second language in Core French programs, immersion programs, intensive programs and classes d’accueil, at both the elementary and the secondary levels. Students will be admitted into, and registered at, either the Université de Montréal or McGill as their "home" university. Courses will be offered at the Université de Montréal during the Fall term and at McGill during the Winter term.

Additional Requirements for Students admitted to B.Ed. TFSL program:

Students admitted to the B.Ed. TFSL program are required to take a diagnostic test in French Language (written and oral). Based on test results, students may be required to successfully complete a remedial course above and beyond degree requirements. In addition, there will be a compulsory French language test for TFSL students prior to their third Field Experience. Students will be required to pass this test in order to continue in the program.

Please note that graduates of teacher education programs are recommended by the University for Quebec certification to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS). For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

Freshman Program

The Freshman year is the time to take introductory-level courses in the subject field, as well as to explore areas that are not normally taken as academic subjects within B.Ed. programs (e.g., Sociology, Psychology, Political Science, etc.). Students should also investigate the possibility of taking one of the First Year Seminar courses offered by the Faculty of Arts or the Faculty of Science.

In consultation with the Program Adviser, students select 30 credits of courses for their Freshman (U0) year of studies.

To ensure that students are able to function effectively in French, students may need to take French as a Second Language (FRSL) courses (placement tests are required to determine the appropriate level) in their Freshman year.

Recommended courses include language courses (selected from CLAS Greek/Latin; EAST Korean/Chinese/Japanese; GERM German; HISP Spanish; ISLA Arabic; ITAL Italian; RUSS Russian/Polish) and courses in the list below.

Contemporary Issues in Education (EDEM 220)
Survey: Canada to 1867 (HIST 202)
Survey: Canada since 1867 (HIST 203)
Introduction to the Study of Language (LING 200)
Introduction to Linguistics (LING 201)
The Study of World Religions 1 (RELG 207)

Required Courses (80 credits)

Stage d'assistanat - 2e année (EDFE 261)
Stage de familiarisation (EDFM 260)
Exceptional Students (EDPI 309)
Séminaire professionnel-2e (EDSL 260)
Étude de la langue (EDSL 301)
Laboratoire d'enseignement en français langue seconde (EDSL 444)
Test de certification en français écrit (EDUM 215)
EDUM 245 (3)  Français écrit pour futurs enseignants
EDUM 262 (3)  Système éducatif - profession enseignante
EDUM 263 (3)  Apprentissage et développement
EDUM 264 (3)  Phonétique et phonologie
EDUM 265 (3)  Acquisition-apprentissage-langues secondes
EDUM 266 (3)  Mathématiques au primaire
EDUM 267 (3)  Didactique des arts plastiques 1
EDUM 268 (3)  Intégration des TIC
EDUM 269 (3)  École et environnement social
EDUM 270 (3)  Morphologie et syntaxe
EDUM 271 (3)  Lexique et sémantique
EDUM 341 (3)  Littératie et Littérature Jeunesse en FLS
EDUM 392 (3)  Gestion de classe en langues secondes
EDUM 393 (3)  Adolescent et expérience scolaire
EDUM 402 (3)  Évaluation en français langue seconde
EDUM 491 (3)  Didactique des mathématiques en langues secondes
EDUM 492 (3)  Didactique des sciences-technologies
FREN 251 (3)  Littérature française depuis 1800
FREN 252 (3)  Littérature québécoise

9 credits to increase the student's proficiency level in the teaching of French, the following courses (or equivalent courses if not available):

FREN 239 (3)  Stylistique comparée
FREN 245 (3)  Grammaire avancée
FREN 334 (3)  Analyse des textes littéraires

Complementary Courses (40 credits)

40 credits selected as described below.

3 credits from:
EDEC 260 (3)  Philosophical Foundations
EDEC 261 (3)  Philosophy of Catholic Education

8 credits, one of two sets of courses:
Either set:
EDFE 362 (7)  Stage d'enseignement en Français langue seconde
EDSL 320 (1)  Séminaire 3 professionnel

Or set:
EDFM 361 (7)  Stage d'enseignement 1
EDUM 394 (1)  Séminaire de stage-3e
11 credits, one of two sets of courses:

Either set:

EDFE 461 (9) Stage d'enseignement - immersion
EDSL 420 (2) Séminaire 4 professionnel

Or set:

EDFM 460 (9) Stage d'enseignement 2
EDUM 499 (2) Séminaire de stage-4e

3 credits from:

EDSL 345 (3) Enseignement du FLS-immersion
EDUM 498 (3) Didactique du français en accueil 2

3 credits from:

EDSL 472 (3) Enseignement du français langue seconde-secondaire
EDUM 391 (3) Didactique du français en accueil 1

3 credits from:

EDUM 493 (3) Sciences humaines au primaire
EDUM 494 (3) Didactique de l'univers social et TIC
EDUM 495 (3) Recherche-résolution de problèmes
EDUM 496 (3) Laboratoire de formation professionnelle
EDUM 497 (3) Problématique en éducation préscolaire

3 credits from:

EDEC 248 (3) Multicultural Education
LING 350 (3) Linguistic Aspects of Bilingualism

6 credits of study of a second or third language, to be chosen from University offerings, so that students experience the learning processes that take place in the learning of a language.

5.10.25 Programme intensif de français Elementary Option

This option will be available for 2011-2012 (pending approval). Students interested in this option should apply to the B.Ed. Kindergarten and Elementary program. Information regarding selection of this option will be forthcoming from the Department.

5.10.26 Bachelor of Education (B.Ed.) - Teaching English as a Second Language - TESL Elementary and Secondary (121 credits)

The Bachelor of Education (B.Ed.) - Teaching English as a Second Language - TESL Elementary and Secondary program requires 121 credits and leads to teacher certification. Students who have not completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies prior to commencing the B.Ed. must also complete a minimum of 30 credits of Freshman courses (in addition to the 121-credit program) for a total of 151 credits.

The program includes studies in language and language learning from linguistic, literary, social, cultural, and psychological perspectives, accompanied by field experiences. It prepares students to teach English as a Second Language (ESL) at both the elementary school level (including regular and intensive
ESL) and the secondary school level (including regular ESL and ESLA - English Second Language Arts), and provides a base for adult and other ESL teaching.

Please note that graduates of teacher education programs are recommended by the University for Quebec certification to the Quebec Ministère de l’Éducation, du Loisir et du Sport (MELS). For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

The Department is committed to supporting students in the development and creation of their individual professional portfolios throughout their program.

**Freshman Program**

Students normally complete 30 credits in their Freshman (U0) year.

The Freshman year is the time to take introductory-level courses in the subject field, as well as to explore areas that are not normally taken as academic subjects within B.Ed. programs (e.g., Sociology, Psychology, Political Science, etc.). Students should also investigate the possibility of taking one of the First Year Seminar courses offered by the Faculty of Arts or the Faculty of Science.

In consultation with the Program Adviser, students may select courses from the recommended course list below or other courses. Included in the list are several French Second Language (FRSL) courses for which placement tests are required to determine the appropriate level. In Quebec, ESL is taught within the French school system. Thus, proficiency in French is an asset for student teaching placements, and is a requirement for employment in Quebec.

To ensure that students are able to function effectively in French in the French school setting, EDSL 215 Effective Communication in French (placement test required) is a required course in the TESL program. This course is offered in alternate years and must be taken in students' first or second year of their program. Students may need to take prerequisite FRSL courses prior to taking EDSL 215. If so, the Freshman year is an ideal time in which to do so.

Other language courses (selected from CLAS Greek/Latin; EAST Korean/Chinese/Japanese; GERM German; HISP Spanish, ISLA Arabic; ITAL Italian; RUSS Russian/Polish) are also good choices for the Freshman year.

<table>
<thead>
<tr>
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<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>EDEC 203</td>
<td>3</td>
<td>Communication in Education</td>
</tr>
<tr>
<td>EDEC 325</td>
<td>3</td>
<td>Children's Literature</td>
</tr>
<tr>
<td>EDEM 220</td>
<td>3</td>
<td>Contemporary Issues in Education</td>
</tr>
<tr>
<td>ENGL 201</td>
<td>3</td>
<td>Survey of English Literature 2</td>
</tr>
<tr>
<td>FRSL 101D1</td>
<td>3</td>
<td>Beginners' French</td>
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<tr>
<td>FRSL 101D2</td>
<td>3</td>
<td>Beginners' French</td>
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<tr>
<td>FRSL 207D1</td>
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<td>Elementary French 01</td>
</tr>
<tr>
<td>FRSL 207D2</td>
<td>3</td>
<td>Elementary French 01</td>
</tr>
<tr>
<td>FRSL 211D1</td>
<td>3</td>
<td>Oral and Written French 1</td>
</tr>
<tr>
<td>FRSL 211D2</td>
<td>3</td>
<td>Oral and Written French 1</td>
</tr>
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<td>LING 200</td>
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<td>Introduction to the Study of Language</td>
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<tr>
<td>LING 201</td>
<td>3</td>
<td>Introduction to Linguistics</td>
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**Required Courses (79 credits)**

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<td>English Language Requirement</td>
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<td>EDEC 247</td>
<td>3</td>
<td>Policy Issues in Quebec Education</td>
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<td>EDES 350</td>
<td>3</td>
<td>Classroom Practices (Secondary)</td>
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<tr>
<td>EDFE 209</td>
<td>2</td>
<td>First Field Experience (TESL)</td>
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<tr>
<td>EDFE 255</td>
<td>3</td>
<td>Second Field Experience (TESL)</td>
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<td>EDFE 359</td>
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<td>Third Field Experience (TESL)</td>
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<td>EDFE 459</td>
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<td>Fourth Field Experience (TESL)</td>
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<td>EDPE 300</td>
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<td>EDPI 309</td>
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<td>Exceptional Students</td>
</tr>
<tr>
<td>EDSL 210</td>
<td>1</td>
<td>First Professional Seminar</td>
</tr>
<tr>
<td>EDSL 215</td>
<td>3</td>
<td>Effective Communication in French</td>
</tr>
<tr>
<td>EDSL 255D1</td>
<td>1</td>
<td>Second Professional Seminar</td>
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### Complementary Courses (36 credits)

36 credits selected as described below:

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<tr>
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<th>Description</th>
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<tbody>
<tr>
<td>EDEC 233</td>
<td>3</td>
<td>First Nations and Inuit Education</td>
</tr>
<tr>
<td>EDEC 248</td>
<td>3</td>
<td>Multicultural Education</td>
</tr>
<tr>
<td>EDEC 249</td>
<td>3</td>
<td>Global Education and Social Justice</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 260</td>
<td>3</td>
<td>Philosophical Foundations</td>
</tr>
<tr>
<td>EDEC 261</td>
<td>3</td>
<td>Philosophy of Catholic Education</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 262</td>
<td>3</td>
<td>Media, Technology and Education</td>
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<tr>
<td>EDPT 200</td>
<td>3</td>
<td>Integrating Educational Technology in Classrooms</td>
</tr>
<tr>
<td>EDPT 204</td>
<td>3</td>
<td>Educational Media 1</td>
</tr>
<tr>
<td>EDPT 341</td>
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<td>Instructional Programming 1</td>
</tr>
<tr>
<td>EDPT 420</td>
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<td>Media Literacy for Education</td>
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</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEE 325</td>
<td>3</td>
<td>Children's Literature</td>
</tr>
<tr>
<td>EDES 366</td>
<td>3</td>
<td>Literature for Young Adults</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDPI 341</td>
<td>3</td>
<td>Instruction in Inclusive Schools</td>
</tr>
<tr>
<td>EDPI 440</td>
<td>3</td>
<td>Managing the Inclusive Classroom</td>
</tr>
</tbody>
</table>
3 credits from:

LING 200  (3)  Introduction to the Study of Language
LING 201  (3)  Introduction to Linguistics

18 credits of English and other academic courses distributed as follows:

6-9 credits of English (ENGL) courses
And
9-12 credits of academic courses including
Foreign language courses (0-9 credits)
Academic courses (3-12 credits)

Electives (6 credits)

6 credits

5.11  Programs for First Nations and Inuit

The following programs are offered in First Nations and Inuit communities for First Nations and Inuit teachers by the Faculty of Education.

Information may be obtained by contacting:

Faculty of Education
First Nations and Inuit Education (FNIE)
3700 McTavish Street, Room 244
Montreal, Quebec H3A 1Y2

Telephone: 514-398-4533
Fax: 514-398-2553

Website: [www.mcgill.ca/edu-integrated](http://www.mcgill.ca/edu-integrated)

For details about the First Nations and Inuit Studies option within the Bachelor of Education Kindergarten and Elementary program, see [section 5.10.21: Bachelor of Education (B.Ed.) - Kindergarten and Elementary Education - First Nations and Inuit Studies (120 credits)](#).

5.11.1  Certificate in Education for First Nations and Inuit (60 credits)

This 60-credit program provides an opportunity for Algonquin, Cree, Inuit, Mi'kmaq, and Mohawk people to become qualified as teachers. It is offered on a part-time basis in Indigenous communities throughout Quebec in collaboration with, for example, the Cree School Board, the Kativik School Board, and various Mi'kmaq, Mohawk, and Algonquin education authorities.

Quebec graduates of this program receive Ministère de l'Éducation, du Loisir et du Sport (MELS) certification to teach at the elementary school level in First Nations and Inuit schools.

On completion of the Certificate requirements, trainees may apply for admission to the Bachelor of Education for Certified Teachers program with up to 30 credits advanced standing. Certain non-credit academic upgrading courses may be required of B.Ed. applicants.

Time Limit

The time limit for completion of the 60-credit Certificate in Education for First Nations and Inuit is 12 years. The University reserves the right to request that a student retake a course or courses after a five-year period if it is felt that too long a break has occurred in the ongoing nature of the training.

The following program requirements are for all students except those specializing in teaching physical education.

Required Courses (30 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>(3)</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>EDEC 203</td>
<td></td>
<td>Communication in Education</td>
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<tr>
<td>EDEC 260</td>
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<td>Philosophical Foundations</td>
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<tr>
<td>EDEE 325</td>
<td></td>
<td>Children's Literature</td>
</tr>
<tr>
<td>EDEM 202</td>
<td></td>
<td>Native Family Dynamics &amp; Supporting Institutions</td>
</tr>
<tr>
<td>EDPE 300</td>
<td></td>
<td>Educational Psychology</td>
</tr>
</tbody>
</table>
EDPI 341  (3)  Instruction in Inclusive Schools

12 credits of practicum courses:
EDEC 201  (1)  First Year Professional Seminar
EDEC 253  (1)  Second Professional Seminar (Kindergarten/Elementary)
EDFE 200  (2)  First Field Experience (K/Elem & Secondary)
EDFE 256  (3)  Second Field Experience (Kindergarten/Elementary)
EDFE 300  (5)  Aboriginal Education Field Experience

Complementary Courses
30 credits selected as described below:

6 credits from the following language courses according to language group and fluency:

**Algonquin**
- EDEC 234  (3)  Algonquin Second Language 2
- EDEE 293  (3)  Algonquin Second Language 1
- EDEE 294  (3)  Algonquin Language 1
- EDEE 295  (3)  Algonquin Language 2

**Cree**
- EDEC 241  (3)  Cree Language 1
- EDEC 242  (3)  Cree Language 2

**Inuktitut**
- EDEE 249  (3)  Inuktitut Orthography and Grammar
- EDEE 342  (3)  Intermediate Inuktitut/Amerindian Language

**Mi’kmaq**
- EDEC 237  (3)  Mi’kmaq Second Language 1
- EDEC 238  (3)  Mi’kmaq Second Language 2
- EDEC 239  (3)  Mi’kmaq Language 1
- EDEC 240  (3)  Mi’kmaq Language 2

**Mohawk**
- EDEC 236  (3)  Mohawk Second Language 2
- EDEE 296  (3)  Mohawk Second Language 1
- EDEE 297  (3)  Mohawk Language 1
- EDEE 298  (3)  Mohawk Language 2

**Naskapi**
- EDEC 227  (3)  Naskapi Language 1
Naskapi Language 2

Cultural Skills and Language Arts
6 credits:
EDEA 242 (3) Cultural Skills 1
EDEE 223 (3) Language Arts

18 credits from course List A and course List B with at least 12 credits in different subject areas. Priority should be given to selecting courses from List A.

List A
EDEC 262 (3) Media, Technology and Education
EDEE 230 (3) Elementary School Mathematics
EDEE 241 (3) Teaching Language Arts
EDEE 250 (2) The Kindergarten Classroom
EDEE 270 (3) Elementary School Science
EDEE 275 (2) Science Teaching
EDEE 280 (3) Geography, History and Citizenship Education
EDEE 282 (2) Teaching Social Sciences
EDEE 291 (3) Cultural Values and Socialization
EDEE 332 (3) Teaching Mathematics 1
EDEE 355 (3) Classroom-based Evaluation

List B
EDEA 241 (3) Basic Art Media for Classroom
EDEC 200 (3) Introduction to Inuit Studies
EDEC 220 (3) Curriculum Development
EDEC 243 (3) Teaching: Multigrade Classrooms
EDEC 244 (3) Issues in Aboriginal Education
EDEC 403 (3) The Dialects of Inuktitut
EDEE 240 (3) Use and Adaptation of Curricula
EDEE 243 (3) Reading Methods in Inuktitut/Cree
EDEE 247 (6) Individualized Instruction
EDEE 248 (3) Reading and Writing Inuktitut/Cree
EDEE 261 (3) Reading Clinic - Early Childhood
EDEE 292 (3) Using Instructional Resources
EDEE 340 (3) Special Topics: Cultural Issues
EDEE 342 (3) Intermediate Inuktitut/Amerindian Language
EDEE 344 (3) Advanced Inuktitut/Amerindian Language
EDEE 345 (3) Literature and Creative Writing 1
EDEE 346 (3) Literature and Creative Writing 2
EDEE 444 (3) First Nations and Inuit Curriculum
EDKP 204 (3) Health Education
5.11.2 Certificate in Education for First Nations and Inuit Physical Education (60 credits)

This 60-credit program provides an opportunity for Algonquin, Cree, Inuit, Mi’kmaq, and Mohawk people to become qualified as teachers. It is offered on a part-time basis in Indigenous communities throughout Quebec in collaboration with, for example, the Cree School Board, the Kativik School Board, and various Mi’kmaq, Mohawk, and Algonquin education authorities.

Quebec graduates of this program receive Ministry (MELS) certification to teach at the elementary school level in First Nations and Inuit schools.

On completion of the Certificate requirements, trainees may apply for admission to the Bachelor of Education for Certified Teachers program with up to 30 credits advanced standing. Certain non-credit academic upgrading courses may be required of B.Ed. applicants.

**Time Limit**

The time limit for completion of the 60-credit Certificate in Education for First Nations and Inuit is 12 years. The University reserves the right to request that a student retake a course or courses after a five-year period if it is felt that too long a break has occurred in the ongoing nature of the training.

Students who specialize in teaching physical education follow the program requirements below.

**Required Courses (30 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEP 203</td>
<td>3</td>
<td>Communication in Education</td>
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<tr>
<td>EDEP 260</td>
<td>3</td>
<td>Philosophical Foundations</td>
</tr>
<tr>
<td>EDEE 325</td>
<td>3</td>
<td>Children's Literature</td>
</tr>
<tr>
<td>EDEM 202</td>
<td>3</td>
<td>Native Family Dynamics &amp; Supporting Institutions</td>
</tr>
<tr>
<td>EDPE 300</td>
<td>3</td>
<td>Educational Psychology</td>
</tr>
<tr>
<td>EDPI 341</td>
<td>3</td>
<td>Instruction in Inclusive Schools</td>
</tr>
</tbody>
</table>

12 credits of practicum courses; students specializing in Physical Education will do a minimum of 6 credits in Physical Education settings.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
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<tbody>
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</tr>
<tr>
<td>EDEP 253</td>
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<td>Second Professional Seminar (Kindergarten/Elementary)</td>
</tr>
<tr>
<td>EDFE 200</td>
<td>2</td>
<td>First Field Experience (K/Elem &amp; Secondary)</td>
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<tr>
<td>EDFE 256</td>
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<td>EDFE 300</td>
<td>5</td>
<td>Aboriginal Education Field Experience</td>
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</table>

**Complementary Courses (30 credits)**

30 credits selected as described below:

6 credits from the following language courses according to language group and fluency:

### Algonquin

<table>
<thead>
<tr>
<th>Course</th>
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<td>EDEP 294</td>
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<tr>
<td>EDEP 295</td>
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### Cree
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<tr>
<td>EDEC 242</td>
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<td>Cree Language 2</td>
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**Inuktitut**

<table>
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<th>Course Name</th>
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<tbody>
<tr>
<td>EDEC 249</td>
<td>(3)</td>
<td>Inuktitut Orthography and Grammar</td>
</tr>
<tr>
<td>EDEC 342</td>
<td>(3)</td>
<td>Intermediate Inuktitut/Amerindian Language</td>
</tr>
</tbody>
</table>

**Mi’kmaq**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 237</td>
<td>(3)</td>
<td>Mi’kmaq Second Language 1</td>
</tr>
<tr>
<td>EDEC 238</td>
<td>(3)</td>
<td>Mi’kmaq Second Language 2</td>
</tr>
<tr>
<td>EDEC 239</td>
<td>(3)</td>
<td>Mi’kmaq Language 1</td>
</tr>
<tr>
<td>EDEC 240</td>
<td>(3)</td>
<td>Mi’kmaq Language 2</td>
</tr>
</tbody>
</table>

**Mohawk**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 236</td>
<td>(3)</td>
<td>Mohawk Second Language 2</td>
</tr>
<tr>
<td>EDEC 296</td>
<td>(3)</td>
<td>Mohawk Second Language 1</td>
</tr>
<tr>
<td>EDEC 297</td>
<td>(3)</td>
<td>Mohawk Language 1</td>
</tr>
<tr>
<td>EDEC 298</td>
<td>(3)</td>
<td>Mohawk Language 2</td>
</tr>
</tbody>
</table>

**Naskapi**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 227</td>
<td>(3)</td>
<td>Naskapi Language 1</td>
</tr>
<tr>
<td>EDEC 228</td>
<td>(3)</td>
<td>Naskapi Language 2</td>
</tr>
</tbody>
</table>

9 credits:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDKP 241</td>
<td>(3)</td>
<td>Aboriginal Physical Activities</td>
</tr>
<tr>
<td>EDKP 342</td>
<td>(3)</td>
<td>Physical Education Methods</td>
</tr>
<tr>
<td>EDKP 494</td>
<td>(3)</td>
<td>Physical Education Curriculum Development</td>
</tr>
</tbody>
</table>

6 credits from the following physical education courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDKP 214</td>
<td>(1)</td>
<td>Basketball 1</td>
</tr>
<tr>
<td>EDKP 217</td>
<td>(2)</td>
<td>Track &amp; Field / Cross Country</td>
</tr>
<tr>
<td>EDKP 218</td>
<td>(1)</td>
<td>Volleyball 1</td>
</tr>
<tr>
<td>EDKP 223</td>
<td>(2)</td>
<td>Games: Principles and Practice</td>
</tr>
<tr>
<td>EDKP 229</td>
<td>(1)</td>
<td>Ice Hockey 1</td>
</tr>
<tr>
<td>EDKP 240</td>
<td>(1)</td>
<td>Winter Activities</td>
</tr>
</tbody>
</table>

**List A**

9 credits from different subject areas from course List A and course List B with priority given to courses from List A.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 262</td>
<td>(3)</td>
<td>Media, Technology and Education</td>
</tr>
<tr>
<td>EDEC 230</td>
<td>(3)</td>
<td>Elementary School Mathematics</td>
</tr>
<tr>
<td>EDEC 241</td>
<td>(3)</td>
<td>Teaching Language Arts</td>
</tr>
<tr>
<td>Code</td>
<td>Credits</td>
<td>Course Title</td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>EDEE 250</td>
<td>2</td>
<td>The Kindergarten Classroom</td>
</tr>
<tr>
<td>EDEE 270</td>
<td>3</td>
<td>Elementary School Science</td>
</tr>
<tr>
<td>EDEE 275</td>
<td>2</td>
<td>Science Teaching</td>
</tr>
<tr>
<td>EDEE 280</td>
<td>3</td>
<td>Geography, History and Citizenship Education</td>
</tr>
<tr>
<td>EDEE 282</td>
<td>2</td>
<td>Teaching Social Sciences</td>
</tr>
<tr>
<td>EDEE 291</td>
<td>3</td>
<td>Cultural Values and Socialization</td>
</tr>
<tr>
<td>EDEE 332</td>
<td>3</td>
<td>Teaching Mathematics 1</td>
</tr>
<tr>
<td>EDEE 355</td>
<td>3</td>
<td>Classroom-based Evaluation</td>
</tr>
</tbody>
</table>

**List B**

<table>
<thead>
<tr>
<th>Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEA 241</td>
<td>3</td>
<td>Basic Art Media for Classroom</td>
</tr>
<tr>
<td>EDEC 200</td>
<td>3</td>
<td>Introduction to Inuit Studies</td>
</tr>
<tr>
<td>EDEC 220</td>
<td>3</td>
<td>Curriculum Development</td>
</tr>
<tr>
<td>EDEC 243</td>
<td>3</td>
<td>Teaching: Multigrade Classrooms</td>
</tr>
<tr>
<td>EDEC 244</td>
<td>3</td>
<td>Issues in Aboriginal Education</td>
</tr>
<tr>
<td>EDEC 403</td>
<td>3</td>
<td>The Dialects of Inuktitut</td>
</tr>
<tr>
<td>EDEC 240</td>
<td>3</td>
<td>Use and Adaptation of Curricula</td>
</tr>
<tr>
<td>EDEC 243</td>
<td>3</td>
<td>Reading Methods in Inuktitut/Cree</td>
</tr>
<tr>
<td>EDEC 247</td>
<td>6</td>
<td>Individualized Instruction</td>
</tr>
<tr>
<td>EDEC 248</td>
<td>3</td>
<td>Reading and Writing Inuktitut/Cree</td>
</tr>
<tr>
<td>EDEC 261</td>
<td>3</td>
<td>Reading Clinic - Early Childhood</td>
</tr>
<tr>
<td>EDEC 292</td>
<td>3</td>
<td>Using Instructional Resources</td>
</tr>
<tr>
<td>EDEC 340</td>
<td>3</td>
<td>Special Topics: Cultural Issues</td>
</tr>
<tr>
<td>EDEC 342</td>
<td>3</td>
<td>Intermediate Inuktitut/Amerindian Language</td>
</tr>
<tr>
<td>EDEC 344</td>
<td>3</td>
<td>Advanced Inuktitut/Amerindian Language</td>
</tr>
<tr>
<td>EDEC 345</td>
<td>3</td>
<td>Literature and Creative Writing 1</td>
</tr>
<tr>
<td>EDEC 346</td>
<td>3</td>
<td>Literature and Creative Writing 2</td>
</tr>
<tr>
<td>EDEC 444</td>
<td>3</td>
<td>First Nations and Inuit Curriculum</td>
</tr>
<tr>
<td>EDKP 204</td>
<td>3</td>
<td>Health Education</td>
</tr>
<tr>
<td>EDKP 224</td>
<td>3</td>
<td>Foundations of Movement Education</td>
</tr>
<tr>
<td>EDKP 342</td>
<td>3</td>
<td>Physical Education Methods</td>
</tr>
<tr>
<td>EDKP 494</td>
<td>3</td>
<td>Physical Education Curriculum Development</td>
</tr>
<tr>
<td>EDPE 377</td>
<td>3</td>
<td>Adolescence and Education</td>
</tr>
<tr>
<td>EDSL 247</td>
<td>3</td>
<td>Second Language Education in Aboriginal Communities</td>
</tr>
</tbody>
</table>

### 5.11.3 Admission to the Certificate in Education for First Nations and Inuit and to the Certificate in Education for First Nations and Inuit Physical Education

An applicant will normally be employed as a teacher or as a classroom assistant, have a valid teaching authorization from the appropriate teaching authority or a community education committee, be recommended by the school principal and an officer of the education authority, be recommended by a local community education committee, and be at least 21 years of age. Younger applicants will be considered for admission if they hold a Grade 12 Secondary School Diploma or a Diploma of Collegial Studies. The right of final decision for acceptance of candidates rests with McGill.

Those intending to complete the programs offered in cooperation with the Kativik School Board must be fluent and literate in Inuktitut/Inuinnaqtun. Fluency in Algonquin, Cree, Mi'kmaq, Mohawk, or Naskapi is not a condition for acceptance for applicants from these communities, but is considered an asset. Courses are available in all four of these languages for those teaching in immersion classes and other teaching situations where a knowledge of the first language is essential.
5.11.4 Certificate in Aboriginal Literacy Education (30 credits)

This 30-credit program is designed for Algonquin, Cree, Inuit, Mi'kmaq, and Kanienkehaka (Mohawk) students who wish to gain a deeper understanding of their Indigenous language, especially in its written form. It is aimed mainly at those who will be teaching their Indigenous language.

This certificate may be taken concurrently and completed within the Bachelor of Education for Certified Teachers program if the requirements for B.Ed. are fulfilled.

**Required Courses (6 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEE 342</td>
<td>(3)</td>
<td>Intermediate Inuktitut/Amerindian Language</td>
</tr>
<tr>
<td>EDEE 344</td>
<td>(3)</td>
<td>Advanced Inuktitut/Amerindian Language</td>
</tr>
</tbody>
</table>

**Complementary Courses (18 credits)**

18 credits selected as described below.

**Language Courses**

6 credits from the following language courses (or other courses as approved by the Director of Programs in First Nations and Inuit Education) including a beginning course (3 credits) in the Indigenous language as a first language (e.g., EDEC 241 Cree Language 1) and a second-level course (3 credits) in the same language (e.g., EDEC 242 Cree Language 2).

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 227</td>
<td>(3)</td>
<td>Naskapi Language 1</td>
</tr>
<tr>
<td>EDEC 228</td>
<td>(3)</td>
<td>Naskapi Language 2</td>
</tr>
<tr>
<td>EDEC 239</td>
<td>(3)</td>
<td>Mi'kmaq Language 1</td>
</tr>
<tr>
<td>EDEC 240</td>
<td>(3)</td>
<td>Mi'kmaq Language 2</td>
</tr>
<tr>
<td>EDEC 241</td>
<td>(3)</td>
<td>Cree Language 1</td>
</tr>
<tr>
<td>EDEC 242</td>
<td>(3)</td>
<td>Cree Language 2</td>
</tr>
<tr>
<td>EDEE 249</td>
<td>(3)</td>
<td>Inuktitut Orthography and Grammar</td>
</tr>
<tr>
<td>EDEE 294</td>
<td>(3)</td>
<td>Algonquin Language 1</td>
</tr>
<tr>
<td>EDEE 295</td>
<td>(3)</td>
<td>Algonquin Language 2</td>
</tr>
<tr>
<td>EDEE 297</td>
<td>(3)</td>
<td>Mohawk Language 1</td>
</tr>
<tr>
<td>EDEE 298</td>
<td>(3)</td>
<td>Mohawk Language 2</td>
</tr>
</tbody>
</table>

**Education Courses**

12 credits from the list below:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEA 242</td>
<td>(3)</td>
<td>Cultural Skills 1</td>
</tr>
<tr>
<td>EDEC 220</td>
<td>(3)</td>
<td>Curriculum Development</td>
</tr>
<tr>
<td>EDEC 403</td>
<td>(3)</td>
<td>The Dialects of Inuktitut</td>
</tr>
<tr>
<td>EDEE 223</td>
<td>(3)</td>
<td>Language Arts</td>
</tr>
<tr>
<td>EDEE 224</td>
<td>(3)</td>
<td>Language Arts Part 2</td>
</tr>
<tr>
<td>EDEE 240</td>
<td>(3)</td>
<td>Use and Adaptation of Curricula</td>
</tr>
<tr>
<td>EDEE 243</td>
<td>(3)</td>
<td>Reading Methods in Inuktitut/Cree</td>
</tr>
<tr>
<td>EDEE 247</td>
<td>(6)</td>
<td>Individualized Instruction</td>
</tr>
<tr>
<td>EDEE 248</td>
<td>(3)</td>
<td>Reading and Writing Inuktitut/Cree</td>
</tr>
<tr>
<td>EDEE 345</td>
<td>(3)</td>
<td>Literature and Creative Writing 1</td>
</tr>
<tr>
<td>EDEE 346</td>
<td>(3)</td>
<td>Literature and Creative Writing 2</td>
</tr>
<tr>
<td>EDSES 365</td>
<td>(3)</td>
<td>Experiences in Communications</td>
</tr>
<tr>
<td>EDPE 304</td>
<td>(3)</td>
<td>Measurement and Evaluation</td>
</tr>
</tbody>
</table>
Electives (6 credits)
6 credits of suitable courses approved by the Director of Programs in First Nations and Inuit Education.

5.11.4.1 Admission to the Certificate in Aboriginal Literacy Education
Students admitted to this program will be recommended by their communities. If the program is used for professional development, students will be Indigenous teachers employed in local schools. They must be mature students, or hold a Secondary V diploma or equivalent. The right of final decision for acceptance of candidates rests with McGill.

5.11.5 Certificate in Middle School Education in Aboriginal Communities (30 credits)
This 30-credit program focuses on developing the particular skills and abilities required of the Indigenous teacher in the middle school of his/her community. It does not lead to provincial certification. Rather, it prepares Indigenous teachers, who are bilingual or have some knowledge of their Indigenous language and who have already established themselves as teachers, to teach students at this level in ways that are developmentally and culturally appropriate. The program focuses on the particular psychological, emotional, and social needs of Aboriginal adolescents and the teacher's role in facilitating the transition between elementary and high school.

This certificate may be taken concurrently and completed within the Bachelor of Education for Certified Teachers program if the requirements for the B.Ed. are fulfilled.

Required Courses (15 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 245</td>
<td>3</td>
<td>Middle School Teaching</td>
</tr>
<tr>
<td>EDEC 246</td>
<td>3</td>
<td>Middle School Curriculum</td>
</tr>
<tr>
<td>EDFE 210</td>
<td>3</td>
<td>Middle School Practicum</td>
</tr>
<tr>
<td>EDPE 377</td>
<td>3</td>
<td>Adolescence and Education</td>
</tr>
</tbody>
</table>

3 credits from the list below:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 302</td>
<td>3</td>
<td>Language and Learning - Curriculum</td>
</tr>
<tr>
<td>EDSL 305</td>
<td>3</td>
<td>L2 Learning: Classroom Settings</td>
</tr>
</tbody>
</table>

Major Subject Area (6 credits)
6 credits in the major subject area of the Bachelor of Education for Certified Teachers selected in consultation with the Director of Programs in First Nations and Inuit Education.

Minor Subject Area (6 credits)
6 credits in the minor subject area of the Bachelor of Education for Certified Teachers selected in consultation with the Director of Programs in First Nations and Inuit Education.

Education Courses (3 credits)
3 credits from the list below or from other courses as approved by the Director of Programs in First Nations and Inuit Education.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEA 241</td>
<td>3</td>
<td>Basic Art Media for Classroom</td>
</tr>
<tr>
<td>EDEC 220</td>
<td>3</td>
<td>Curriculum Development</td>
</tr>
<tr>
<td>EDEC 243</td>
<td>3</td>
<td>Teaching: Multigrade Classrooms</td>
</tr>
<tr>
<td>EDEE 291</td>
<td>3</td>
<td>Cultural Values and Socialization</td>
</tr>
<tr>
<td>EDEE 444</td>
<td>3</td>
<td>First Nations and Inuit Curriculum</td>
</tr>
<tr>
<td>EDKP 241</td>
<td>3</td>
<td>Aboriginal Physical Activities</td>
</tr>
<tr>
<td>EDPT 200</td>
<td>3</td>
<td>Integrating Educational Technology</td>
</tr>
<tr>
<td>EDSL 247</td>
<td>3</td>
<td>Second Language Education in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Aboriginal Communities</td>
</tr>
<tr>
<td>EDSL 305</td>
<td>3</td>
<td>L2 Learning: Classroom Settings</td>
</tr>
</tbody>
</table>
5.11.5.1 Admission to the Certificate in Middle School Education in Aboriginal Communities

Applicants will normally have completed or be completing their B.Ed. for Certified Teachers. It is strongly recommended that they have some competence in their Indigenous language as indicated by the successful completion of at least two language courses. For those applying with degrees from other universities, additional courses may be required to match the McGill B.Ed. for Certified Teachers profile. As the program and courses will be delivered in the partnership communities, applicants must be recommended by their school boards or teaching authorities. The right of final decision for acceptance of candidates rests with McGill.

5.11.6 Certificate in First Nations and Inuit Educational Leadership (30 credits)

This 30-credit program is designed for First Nations and Inuit organizations to develop their role as leaders within the educational community. The program will focus on developing the core competencies of educational leaders, e.g., decision making and problem solving; fostering a self-reflective leader able to partner with parents to create community outreach; cultivating awareness of the holistic learning and developmental cycles of a child and the role of the educational leader in enhancing that development; maintaining the continuity of community and cultural values and aspirations within the structure of the administration of the school and other educational milieu; and understanding and supporting the pedagogical objectives and the administrative framework of the educational system.

This certificate may be taken concurrently and completed within the Bachelor of Education for Certified Teachers if the requirements for the B.Ed. are fulfilled. It may also be followed concurrently with the Certificate in Education - First Nations and Inuit.

Required Courses (15 credits)

- EDEC 221 (3) Leadership and Group Skills
- EDEC 222 (3) Personnel Management and Support
- EDEC 233 (3) First Nations and Inuit Education
- EDEC 311 (3) Resource Management
- EDEC 312 (3) Practicum in Educational Leadership

Complementary Courses (15 credits)

15 credits from the list below or any other course approved by the Director of Programs in First Nations and Inuit Education.

- EDEC 220 (3) Curriculum Development
- EDEC 244 (3) Issues in Aboriginal Education
- EDEE 240 (3) Use and Adaptation of Curricula
- EDEE 245 (3) Orientation to Education
- EDEE 340 (3) Special Topics: Cultural Issues
- EDEM 202 (3) Native Family Dynamics & Supporting Institutions
- EDES 365 (3) Experiences in Communications
- EDPI 341 (3) Instruction in Inclusive Schools

5.11.6.1 Admission to the Certificate in First Nations and Inuit Educational Leadership

Students admitted to this program will be recommended by their communities. They must be mature students (21 years of age), or hold a Secondary V diploma or equivalent. Students must speak, read, and write fluently the language of instruction as agreed upon between the unit and the client School Board or Education Centre. For Nunavik applicants, students must have experience in a Nunavik educational or community organization. The right of final decision for acceptance of candidates rests with McGill.

5.11.7 Bachelor of Education for Certified Teachers — Elementary Education — Native and Northern (90 credits)

This 90-credit program is designed for teachers who are already certified to teach in elementary schools and who wish to earn a Bachelor of Education degree. Normally, a minimum of 60 credits must be taken in the program, and no more than 30 credits may be transferred from other institutions. Credits may be transferred from programs leading to the certificates in Educational Technology, Second Language Teaching, Inclusive Education, or Aboriginal Literacy Education taken concurrently. Credit may also be transferred from the Certificate in Education for First Nations and Inuit, which is normally completed before the B.Ed. Students completing the Bachelor of Education for Certified Teachers following the Certificate in Education for First Nations and Inuit will have accumulated a total of 120 credits, 60 for the certificate and a further 60 for the B.Ed.

The Certificate in Aboriginal Literacy Education, the Certificate in Middle School Education in Aboriginal Communities, or the Certificate in First Nations and Inuit Educational Leadership may be taken concurrently and completed within the Bachelor of Education for Certified Teachers if the required B.Ed. profile is fulfilled.
This program does not lead to further certification.

**Complementary Courses**
Candidates enrolled in the program complete 90 credits within the following general pattern.

**Academic Concentration (30 credits)**
30 credits in five (5) subject areas relevant to elementary education in a 12-9-3-3-3 pattern (i.e., 12 credits in one subject, 9 credits in a second subject, and 3 credits in each of three (3) other subject areas), or 30 academic credits in three subject areas in a 15-9-6 pattern.

Note: Subject areas relevant to elementary education, in broad terms, are the Arts (Art, Music and Drama), English, French, Science, Mathematics, Physical Education, Moral and Religious Education, Social Studies, Educational Technology, or an Aboriginal language.

**Cultural Development (15 credits)**
15 credits of courses that will enhance the candidate's cultural development. These are to be chosen in consultation with the Director of Programs in First Nations and Inuit Education.

**Education Concentration (30 credits)**
30 credits. Normally the Education concentration is completed within the Certificate in Education for First Nations and Inuit.

**Electives (15 credits)**
15 credits selected by the candidate after consultation with the Director of Programs in First Nations and Inuit Education.

5.11.7.1 Admission Requirements for the B.Ed. for Certified Teachers
Applicants apply on the basis of having completed the Certificate in Education for First Nations and Inuit or equivalent and must have the continued support of their education authority to attend the field-based program. The right of final decision for acceptance of candidates rests with McGill.

5.11.8 Certificate in Aboriginal Education for Certified Teachers (30 credits)
This 30-credit program provides training to assist mainstream teachers in becoming more effective teachers in First Nations and Inuit communities. It is designed to address subjects of particular interest and need in First Nations and Inuit schools, such as cultural socialization, cooperative learning, second-language teaching, and curriculum development.

**Required Courses (18 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 220</td>
<td>3</td>
<td>Curriculum Development</td>
</tr>
<tr>
<td>EDEC 233</td>
<td>3</td>
<td>First Nations and Inuit Education</td>
</tr>
<tr>
<td>EDEE 240</td>
<td>3</td>
<td>Use and Adaptation of Curricula</td>
</tr>
<tr>
<td>EDEE 291</td>
<td>3</td>
<td>Cultural Values and Socialization</td>
</tr>
<tr>
<td>EDEE 444</td>
<td>3</td>
<td>First Nations and Inuit Curriculum</td>
</tr>
<tr>
<td>EDSL 247</td>
<td>3</td>
<td>Second Language Education in Aboriginal Communities</td>
</tr>
</tbody>
</table>

**Complementary Courses (12 credits)**
12 credits selected as described below.

**Language**
3 credits of an introductory language course in the language of the community.

**Education**
9 credits of Education courses selected from the list below or any other suitable course approved by the Director of Programs in First Nations and Inuit Education.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEA 242</td>
<td>3</td>
<td>Cultural Skills I</td>
</tr>
<tr>
<td>EDEC 200</td>
<td>3</td>
<td>Introduction to Inuit Studies</td>
</tr>
<tr>
<td>EDEE 247</td>
<td>6</td>
<td>Individualized Instruction</td>
</tr>
<tr>
<td>EDEE 290</td>
<td>3</td>
<td>Cooperative Learning</td>
</tr>
</tbody>
</table>
5.11.8.1 Admission to the Certificate in Aboriginal Education for Certified Teachers

Applicants must provide the following:

• a Diploma of Collegial Studies (DEC) or its equivalent;
• evidence of having completed teacher training at an approved institution;
• a letter of recommendation from a competent authority.

All courses are normally given off campus and are normally limited to students enrolled in off-campus programs delivered through First Nations and Inuit Education. The right of final decision for acceptance of candidates rests with McGill.

5.11.9 Certificate in First Nations and Inuit Student Personnel Services (30 credits)

This program is offered by the Department of Educational and Counselling Psychology through First Nations and Inuit Education.

This 30-credit program is designed to provide Aboriginal school personnel advisers with a training program that will enable them to learn about the principles and practice of personnel services as generally applied in educational settings, to help Aboriginal student personnel advisers develop their personal skills, and to modify or adapt their services and the content to best suit the cultural and educational needs of Aboriginal students; to encourage Aboriginal student personnel advisers to take leadership in developing educational programs that address the social needs of their communities, to upgrade their academic qualifications and professional development; and to develop and make available, in English and in the languages of instruction, collections of professional and scholarly knowledge about students' needs, and services in First Nations and Inuit communities.

Bearsers of this certificate will be qualified to work as educational and school personnel advisers within the employ of an Aboriginal educational authority.

Required Courses (21 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDPC 201</td>
<td>(3)</td>
<td>Introduction to Student Advising</td>
</tr>
<tr>
<td>EDPC 202</td>
<td>(3)</td>
<td>Helping Skills Practicum 1</td>
</tr>
<tr>
<td>EDPC 203</td>
<td>(3)</td>
<td>Helping Skills Practicum 2</td>
</tr>
<tr>
<td>EDPC 205</td>
<td>(3)</td>
<td>Career/Occupational Development</td>
</tr>
<tr>
<td>EDPC 208</td>
<td>(3)</td>
<td>Native Families' Dynamics</td>
</tr>
<tr>
<td>EDPC 209</td>
<td>(3)</td>
<td>Basic Crisis Intervention Skills</td>
</tr>
<tr>
<td>EDPC 210</td>
<td>(3)</td>
<td>Field Experience</td>
</tr>
</tbody>
</table>

Complementary Courses (9 credits)

9 credits selected from the list below or any other suitable course approved by the Program Coordinator.

Registration in EDEM 202, EDKP 204, or any other courses offered by departments other than Educational and Counselling Psychology, or in other programs of this Department is dependent on availability (e.g., through a concurrently offered program) or through an arrangement made with that department or program. The Program Coordinator will attempt to make these contacts whenever required.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEM 202</td>
<td>(3)</td>
<td>Native Family Dynamics &amp; Supporting Institutions</td>
</tr>
<tr>
<td>EDKP 204</td>
<td>(3)</td>
<td>Health Education</td>
</tr>
<tr>
<td>EDPC 206</td>
<td>(3)</td>
<td>Group Leadership Skills</td>
</tr>
<tr>
<td>EDPC 207</td>
<td>(3)</td>
<td>Aboriginal Adolescent Development</td>
</tr>
<tr>
<td>EDPC 211</td>
<td>(3)</td>
<td>Special Topics in Student Personnel Services</td>
</tr>
<tr>
<td>EDPL 211</td>
<td>(3)</td>
<td>Social and Emotional Development</td>
</tr>
</tbody>
</table>

5.11.9.1 Admission to Certificate in First Nations and Inuit Student Personnel Services

Admission Requirements

• Speak, read, and write fluently the language of instruction as agreed upon between First Nations and Inuit Education and the contracting school board.
• Hold a student adviser position in an Aboriginal community. This may be a new appointment concurrent with registration in the program. The position must be sufficient to meet the practicum requirements of the program.
• Be recommended by the local education authority.
• Be at least 21 years of age (except for special permission). By this means, students will qualify for admission as Mature Students under McGill regulations, and thereby not be required to have a Diploma of Collegial Studies (DEC).
• Be recommended and selected by the school administration in collaboration with McGill personnel.

The right of final decision for acceptance of candidates rests with McGill.

5.12  Department of Kinesiology and Physical Education

5.12.1  Location

Currie Gym
475 Pine Avenue West
Montreal, Quebec H2W 1S4

Telephone: 514-398-4184
Fax: 514-398-4186
Website: www.mcgill.ca/edu-kpe
Email: kin.physed@mcgill.ca

5.12.2  About the Department of Kinesiology and Physical Education

The Department of Kinesiology and Physical Education offers one program leading to a B.Ed. degree, one program leading to a B.Sc. degree, and a Minor in Kinesiology for Science students.

The Department also offers programs at the graduate level leading to an M.A. and M.Sc., and possibilities for doctoral studies. For further information, see the most current Graduate and Postdoctoral Studies Programs, Courses and University Regulations publication found at www.mcgill.ca/study.

5.12.3  Department of Kinesiology and Physical Education Faculty

<table>
<thead>
<tr>
<th>Chair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theodore E. Milner</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Director of Undergraduate Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Julie Côté</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Director of Graduate Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>René A. Turcotte</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Professors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ross E. Andersen; B.Ed., M.A.(McG.), Ph.D.(Temple) (Canada Research Chair)</td>
</tr>
<tr>
<td>Theodore E. Milner; B.Sc., M.Sc., Ph.D.(Alta.)</td>
</tr>
<tr>
<td>Hélène Perrault; B.Sc.(C'dia), M.Sc., Ph.D.(Montr.)</td>
</tr>
<tr>
<td>Greg Reid; B.Ed.(P.E.)(McG.), M.S.(Calif.), Ph.D.(Penn. St.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Associate Professors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gordon Bloom; M.A.(W. Ont.), M.A.(York), Ph.D.(Ott.)</td>
</tr>
<tr>
<td>Julie Côté; B.Sc., M.Sc.(Wisc., Madison), Ph.D.(Montr.)</td>
</tr>
<tr>
<td>Russell T. Hepple; B.Sc.(Sask.), M.Sc., Ph.D.(Tor.)</td>
</tr>
<tr>
<td>David J. Pearse; B.A., B.P.H.E., M.Sc., Ph.D.(Qu.)</td>
</tr>
<tr>
<td>Dilson Rassier; B.P.E., M.Sc.(Brazil), Ph.D.(Calg.)</td>
</tr>
<tr>
<td>Paul James Stapley; B.A.(Leeds Poly.), M.Sc.(Northumbria), Ph.D.(Université de Bourgogne)</td>
</tr>
<tr>
<td>René A. Turcotte; H.B.P.H.E.(Laur.), M.Sc., Ph.D.(Alta.)</td>
</tr>
</tbody>
</table>
Assistant Professors

Enrique Garcia; B.P.E., INEF(Madrid), M.Sc.(Laval), Ph.D.(Alta.)
William Harvey; B.Ed., M.A., Ph.D.(McG.)
Dennis Jensen; B.P.E.(Brock), M.Sc., Ph.D.(Qu.)
Catherine M. Sabiston; B.Sc.K.(Dal.), M.H.K.(Windsor), Ph.D.(Br. Col.)
Tanja Taivassalo; B.Sc., Ph.D.(McG.)

Adjunct Professors

Bernard Aguilaniu; M.D., Ph.D.(Grenoble)
Robert Boushel; B.A.(P.E.) (Acad.), M.A.(S. Florida), D.Sc.(Boston)
Christian Duval; B.Sc.(UQTR), M.Sc.(UQAM), Ph.D.(McG.)
François Peronnet; M.Sc., Ph.D.(Monte.) Emeritus Professor

Associate Member

Robert Thomas Jagoe; B.A.(Camb.), M.B., B.Chir., MRCP(UK), CCST(Resp. and General (Internal) Med.), Ph.D.(Newcastle, UK), FRCP

5.12.4 Bachelor of Education (B.Ed.) - Physical and Health Education (120 credits)

The Bachelor of Education (B.Ed.) - Physical and Health Education is a 120-credit program leading to teacher certification. Students who have not completed Quebec CEGEP, French Baccalauréate, International Baccalauréate, or at least one year of university studies prior to commencing the B.Ed. must also complete a minimum of 30 credits of Freshman courses (in addition to the 120 credit program) for a total of 150 credits.

The Physical and Health Education program prepares students to teach physical and health education at the elementary and secondary levels. In a unique structure interweaving academic studies, professional course work, and teaching practices over the course of study, students are rapidly given the opportunity to assume a teaching role; the extent of teaching involvement and expectations progressively building on additional academic and professional courses.

Please note that graduates of teacher education programs are recommended by the University for Quebec certification to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS). For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

Freshman Program

Freshman students are required to complete 30 credits of introductory (100- or 200-level) courses. Students will not be granted permission to take first-year (U1) courses if the credits from the Freshman year have not been obtained. For students considering a second teachable subject, the following areas are recommended: history, geography, English, or mathematics.

From the "Required Courses" list, Freshman students take the 0-credit course EDEC 215 English Language Requirement. In addition, in consultation with the Program Adviser, students may select courses from the recommended course list below or other courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEAP 250</td>
<td>(3)</td>
<td>Research Essay &amp; Rhetoric</td>
</tr>
<tr>
<td>EDEC 202</td>
<td>(3)</td>
<td>Effective Communication</td>
</tr>
<tr>
<td>EDEM 220</td>
<td>(3)</td>
<td>Contemporary Issues in Education</td>
</tr>
</tbody>
</table>

Required Courses (95 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 215</td>
<td>(0)</td>
<td>English Language Requirement</td>
</tr>
<tr>
<td>EDEC 247</td>
<td>(3)</td>
<td>Policy Issues in Quebec Education</td>
</tr>
<tr>
<td>EDEC 260</td>
<td>(3)</td>
<td>Philosophical Foundations</td>
</tr>
<tr>
<td>EDFE 246</td>
<td>(3)</td>
<td>First Field Experience (Physical Education)</td>
</tr>
<tr>
<td>EDFE 373</td>
<td>(3)</td>
<td>Second Field Experience (Physical Education)</td>
</tr>
<tr>
<td>EDFE 380</td>
<td>(7)</td>
<td>Third Field Experience (Physical Education)</td>
</tr>
<tr>
<td>EDFE 480</td>
<td>(7)</td>
<td>Fourth Field Experience (Physical Education)</td>
</tr>
<tr>
<td>EDKP 204</td>
<td>(3)</td>
<td>Health Education</td>
</tr>
<tr>
<td>EDKP 208</td>
<td>(3)</td>
<td>Biomechanics and Motor Learning</td>
</tr>
</tbody>
</table>
EDKP 213 (1) Aquatics 1
EDKP 214 (1) Basketball 1
EDKP 215 (0) Standard First Aid/Cardio-Pulmonary Resuscitation Level C
EDKP 217 (2) Track & Field / Cross Country
EDKP 218 (1) Volleyball 1
EDKP 219 (1) Healthy Lifestyle Activity
EDKP 223 (2) Games: Principles and Practice
EDKP 225 (1) Games: Principles and Practice 2
EDKP 226 (1) Quebec Education Program Orientation
EDKP 233 (1) Soccer
EDKP 252 (2) Racquet Sports
EDKP 253 (1) Educational Gymnastics
EDKP 254 (1) Principles of Dance
EDKP 261 (3) Motor Development
EDKP 292 (3) Nutrition and Wellness
EDKP 293 (3) Anatomy and Physiology
EDKP 307 (3) Evaluation in Physical Education
EDKP 330 (3) Physical Activity and Health
EDKP 342 (3) Physical Education Methods
EDKP 391 (3) Physiology in Sport and Exercise
EDKP 394 (3) Historical Perspectives
EDKP 396 (3) Adapted Physical Activity
EDKP 442 (3) Physical Education Pedagogy
EDKP 443 (3) Research Methods
EDKP 448 (3) Exercise and Health Psychology
EDKP 494 (3) Physical Education Curriculum Development
EDKP 498 (3) Sport Psychology
EDPE 208 (3) Personality and Social Development
EDPE 300 (3) Educational Psychology

Complementary Courses (10 credits)
10 credits selected as specified below:

Physical Activity
4 credits of Physical Activity courses (EDKP) offered by the Department of Kinesiology and Physical Education.

Multicultural Education
3 credits from:
EDEC 233 (3) First Nations and Inuit Education
EDEC 248 (3) Multicultural Education
EDEC 249 (3) Global Education and Social Justice

Media, Technology, Computers and Education
3 credits from:
* Note: Students with a background in computers or other media applications in education may select the courses with an asterisk (*).  

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 262</td>
<td>(3)</td>
<td>Media, Technology and Education</td>
</tr>
<tr>
<td>EDPT 200</td>
<td>(3)</td>
<td>Integrating Educational Technology in Classrooms</td>
</tr>
<tr>
<td>EDPT 204</td>
<td>(3)</td>
<td>Educational Media 1</td>
</tr>
<tr>
<td>EDPT 341*</td>
<td>(3)</td>
<td>Instructional Programming 1</td>
</tr>
<tr>
<td>EDPT 420*</td>
<td>(3)</td>
<td>Media Literacy for Education</td>
</tr>
</tbody>
</table>

**Electives (15 credits)**

15 credits chosen from any of the University's course offerings to contribute to the student's academic proficiency and professional preparation.

**5.12.5 Bachelor of Science (Kinesiology) (B.Sc.(Kinesiology)) - Kinesiology (90 credits)**

The McGill Bachelor of Science (Kinesiology) program received accreditation from the Canadian Council of University Physical Education and Kinesiology Administrators (CCUPEKA) in April 2007.

The B.Sc.(Kinesiology) is a 90-credit program. Students who have not completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies are normally enrolled in a four-year B.Sc.(Kinesiology) program, which includes a 30-credit Freshman year for a total of 120 credits.

The focus of the Kinesiology program is a comprehensive understanding of human movement. Kinesiology is a multidisciplinary field viewing human movement from social, historical, psychological, or biological perspectives. The program provides students with a breadth of theoretical knowledge as well as an opportunity to explore related areas in greater depth, including minor programs available elsewhere within the University.

Students are encouraged to select a minor program in a given discipline or interdisciplinary area. A maximum of 6 credits of overlap is allowed between the Minor and the primary program. A minimum of 18 new credits must be completed in the Minor or Minor concentration. Science minors require from 18-24 credits. Arts Minor concentrations and Management Minors generally require 18 credits. For approved minors and minor concentrations, refer to the programs offered by the Faculty of Arts, the Desautels Faculty of Management, and the Faculty of Science.

An Honours program is available for particularly strong students. To qualify for the Honours program, students must obtain a CGPA of 3.3 after two years in Kinesiology and must retain this CGPA until graduation.

**Graduation Requirement:**

Prior to graduation, students are required to show proof of certification in Standard Level Safety Oriented First Aid/Level C in Cardiopulmonary Resuscitation, or equivalencies.

**Freshman Program**

29-30 credits of Basic Science courses depending on the Fall term MATH course selected.

Students admitted from CEGEP or with other Advanced Standing should have equivalencies for these courses to be exempt from Freshman program requirements.

**Fall term BIOL and CHEM courses:**

- **BIOL 111** (3) Principles: Organismal Biology
- **CHEM 110** (4) General Chemistry 1

In consultation with a program adviser, one of the following Fall term MATH courses:

- **MATH 139** (4) Calculus 1 with Precalculus
- **MATH 140** (3) Calculus 1
- **MATH 150** (4) Calculus A

In consultation with a program adviser, one of the following Fall term PHYS courses:

- **PHYS 101** (4) Introductory Physics - Mechanics
- **PHYS 131** (4) Mechanics and Waves

**Winter term BIOL and CHEM courses:**
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 112</td>
<td>(3)</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>CHEM 120</td>
<td>(4)</td>
<td>General Chemistry 2</td>
</tr>
</tbody>
</table>

One of the following Winter term MATH courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 141</td>
<td>(4)</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>MATH 151</td>
<td>(4)</td>
<td>Calculus B</td>
</tr>
</tbody>
</table>

One of the following Winter term PHYS courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 102</td>
<td>(4)</td>
<td>Introductory Physics - Electromagnetism</td>
</tr>
<tr>
<td>PHYS 142</td>
<td>(4)</td>
<td>Electromagnetism and Optics</td>
</tr>
</tbody>
</table>

**Required Courses (58 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 315</td>
<td>(4)</td>
<td>Anatomy/Limbs and Back</td>
</tr>
<tr>
<td>ANAT 316</td>
<td>(2)</td>
<td>Human Visceral Anatomy</td>
</tr>
<tr>
<td>BIOL 200</td>
<td>(3)</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>(4)</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>EDKP 206</td>
<td>(3)</td>
<td>Biomechanics of Human Movement</td>
</tr>
<tr>
<td>EDKP 215</td>
<td>(0)</td>
<td>Standard First Aid/Cardio-Pulmonary Resuscitation Level C</td>
</tr>
<tr>
<td>EDKP 261</td>
<td>(3)</td>
<td>Motor Development</td>
</tr>
<tr>
<td>EDKP 292</td>
<td>(3)</td>
<td>Nutrition and Wellness</td>
</tr>
<tr>
<td>EDKP 330</td>
<td>(3)</td>
<td>Physical Activity and Health</td>
</tr>
<tr>
<td>EDKP 394</td>
<td>(3)</td>
<td>Historical Perspectives</td>
</tr>
<tr>
<td>EDKP 395</td>
<td>(3)</td>
<td>Exercise Physiology</td>
</tr>
<tr>
<td>EDKP 396</td>
<td>(3)</td>
<td>Adapted Physical Activity</td>
</tr>
<tr>
<td>EDKP 405</td>
<td>(3)</td>
<td>Sport in Society</td>
</tr>
<tr>
<td>EDKP 443</td>
<td>(3)</td>
<td>Research Methods</td>
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<tr>
<td>EDKP 447</td>
<td>(3)</td>
<td>Motor Control</td>
</tr>
<tr>
<td>EDKP 485</td>
<td>(3)</td>
<td>Exercise Pathophysiology 1</td>
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<tr>
<td>EDKP 495</td>
<td>(3)</td>
<td>Scientific Principles of Training</td>
</tr>
<tr>
<td>EDKP 498</td>
<td>(3)</td>
<td>Sport Psychology</td>
</tr>
<tr>
<td>PHGY 209</td>
<td>(3)</td>
<td>Mammalian Physiology 1</td>
</tr>
<tr>
<td>PHGY 210</td>
<td>(3)</td>
<td>Mammalian Physiology 2</td>
</tr>
</tbody>
</table>

**Complementary Courses (12 credits)**

12 credits selected as described below.

3 credits of Statistics from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 373</td>
<td>(3)</td>
<td>Biometry</td>
</tr>
<tr>
<td>MATH 203</td>
<td>(3)</td>
<td>Principles of Statistics 1</td>
</tr>
<tr>
<td>PSYC 204</td>
<td>(3)</td>
<td>Introduction to Psychological Statistics</td>
</tr>
<tr>
<td>SOCI 350</td>
<td>(3)</td>
<td>Statistics in Social Research</td>
</tr>
</tbody>
</table>
9 credits from:

EDKP 200 (1) Weight Training
EDKP 201 (3) Physical Activity Leadership
EDKP 244 (1) Dance and Fitness
EDKP 249 (1) Physical Activity Appraisal
EDKP 250 (3) Practicum 1
EDKP 311 (3) Athletic Injuries
EDKP 350 (3) Physical Fitness Evaluation Methods
EDKP 444 (3) Ergonomics
EDKP 445 (3) Exercise Metabolism
EDKP 446 (3) Physical Activity and Ageing
EDKP 448 (3) Exercise and Health Psychology
EDKP 449 (3) Exercise Pathophysiology 2
EDKP 450 (3) Practicum 3
EDKP 451 (3) Personal Trainer Practicum
EDKP 452 (3) Fitness & Lifestyle Consulting
EDKP 453 (3) Research Practicum in Kinesiology
EDKP 542 (3) Environmental Exercise Physiology
EDKP 553 (3) Physical Activity Assessments
EDKP 566 (3) Advanced Biomechanics Theory
NUTR 503 (3) Bioenergetics and the Lifespan

Elective Courses (20 credits)

Students are encouraged to obtain some of their remaining credits by completing one of the minors or minor concentrations offered by the Faculty of Arts, the Desautels Faculty of Management, or the Faculty of Science.

A maximum of 6 credits of overlap is allowed between the Minor and the primary program. A minimum of 18 new credits must be completed in the Minor or Minor concentration. Science minors require 18-24 credits. Arts Minor concentrations and Management Minors generally require 18 credits.

5.12.6 Bachelor of Science (Kinesiology) (B.Sc.(Kinesiology)) - Kinesiology - Honours (90 credits)

The McGill Bachelor of Science (Kinesiology) program received accreditation from the Canadian Council of University Physical Education and Kinesiology Administrators (CCUPEKA) in April 2007.

The Honours version of the B.Sc.(Kinesiology) is a 90-credit program. Students who have not completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies are normally enrolled in a four-year B.Sc.(Kinesiology) program, which includes a 30-credit Freshman year for a total of 120 credits.

The Kinesiology - Honours program offers particularly strong students aspiring to continue their studies at the graduate level the opportunity to pursue more advanced coursework. The program requires the completion of a research project under the direction of a professor during the final year. To qualify for the Honours program, students must obtain a CGPA of 3.3 after two years in Kinesiology and must retain this CGPA until graduation.

Graduation Requirement:

Prior to graduation, students are required to show proof of certification in Standard Level Safety Oriented First Aid/Level C in Cardiopulmonary Resuscitation, or equivalencies.

Freshman Program

29-30 credits of basic science courses depending on the Fall term MATH course selected.

Students admitted from CEGEP or with other advanced standing should have equivalencies for these courses to be exempt from Freshman Program requirements.

Fall term BIOL and CHEM courses:
BIOL 111  (3)  Principles: Organismal Biology
CHEM 110  (4)  General Chemistry 1

In consultation with a program adviser, one of the following Fall term MATH courses:
MATH 139  (4)  Calculus 1 with Precalculus
MATH 140  (3)  Calculus 1
MATH 150  (4)  Calculus A

In consultation with a program adviser, one of the following Fall term PHYS courses:
PHYS 101  (4)  Introductory Physics - Mechanics
PHYS 131  (4)  Mechanics and Waves

Winter term BIOL and CHEM courses:
BIOL 112  (3)  Cell and Molecular Biology
CHEM 120  (4)  General Chemistry 2

One of the following Winter term MATH courses:
MATH 141  (4)  Calculus 2
MATH 151  (4)  Calculus B

One of the following Winter term PHYS courses:
PHYS 102  (4)  Introductory Physics - Electromagnetism
PHYS 142  (4)  Electromagnetism and Optics

Required Courses (67 credits)
In addition to the 58 credits of required courses for the Major, Honours students complete EDKP 453 "Research Practicum in Kinesiology" and EDKP 499 "Undergraduate Honours Research Project".
ANAT 315  (4)  Anatomy/Limbs and Back
ANAT 316  (2)  Human Visceral Anatomy
BIOL 200  (3)  Molecular Biology
CHEM 212  (4)  Introductory Organic Chemistry 1
EDKP 206  (3)  Biomechanics of Human Movement
EDKP 215  (0)  Standard First Aid/Cardio-Pulmonary Resuscitation Level C
EDKP 261  (3)  Motor Development
EDKP 292  (3)  Nutrition and Wellness
EDKP 330  (3)  Physical Activity and Health
EDKP 394  (3)  Historical Perspectives
EDKP 395  (3)  Exercise Physiology
EDKP 396  (3)  Adapted Physical Activity
EDKP 405  (3)  Sport in Society
EDKP 443 (3) Research Methods
EDKP 447 (3) Motor Control
EDKP 453 (3) Research Practicum in Kinesiology
EDKP 485 (3) Exercise Pathophysiology 1
EDKP 495 (3) Scientific Principles of Training
EDKP 498 (3) Sport Psychology
EDKP 499 (6) Undergraduate Honours Research Project
PHGY 209 (3) Mammalian Physiology 1
PHGY 210 (3) Mammalian Physiology 2

**Complementary Courses (15 credits)**

15 credits selected as described below.

3 credits of statistics from:

- BIOL 373 (3) Biometry
- MATH 203 (3) Principles of Statistics 1
- PSYC 204 (3) Introduction to Psychological Statistics
- SOCI 350 (3) Statistics in Social Research

12 credits from:

- BIOC 311 (3) Metabolic Biochemistry
- EDKP 311 (3) Athletic Injuries
- EDKP 444 (3) Ergonomics
- EDKP 445 (3) Exercise Metabolism
- EDKP 446 (3) Physical Activity and Ageing
- EDKP 448 (3) Exercise and Health Psychology
- EDKP 449 (3) Exercise Pathophysiology 2
- EDKP 542 (3) Environmental Exercise Physiology
- EDKP 566 (3) Advanced Biomechanics Theory
- NUTR 344 (4) Clinical Nutrition 1
- NUTR 503 (3) Bioenergetics and the Lifespan
- PHGY 314 (3) Integrative Neuroscience
- POTH 434 (3) Biomechanics of Injury
- PSYC 471 (3) Human Motivation

**Elective Courses (8 credits)**

To be chosen from 200-, 300-, 400-, or 500-level courses in consultation with the Undergraduate Program Director or Student Adviser.
School of Information Studies

Location

3661 Peel Street
Montreal, Quebec H3A 1X1

Telephone: 514-398-4204
Fax: 514-398-7193
Email: sis@mcgill.ca
Website: www.mcgill.ca/isy

About the School of Information Studies

The School of Information Studies focuses upon the knowledge and skills necessary to identify, acquire, organize, retrieve, and disseminate information so as to meet people's varied information needs.

The School of Information Studies offers four programs at the graduate level. Its 48-credit Master of Library and Information Studies (MLIS) has three areas of specialization: Archival Studies, Knowledge Management, and Librarianship. Accredited by the American Library Association, the MLIS program prepares professionals to manage information resources and services in libraries and the wider information industries. Its 30-credit Graduate Diploma in Library and Information Studies and 15-credit Graduate Certificate in Library and Information Studies are designed to provide a formal environment in which information professionals can update, specialize, and redirect their careers for advanced responsibilities. Its Ph.D. program provides an opportunity to undertake research at the doctoral level in library and information studies within an interdisciplinary context.

For further information concerning programs, requirements, and courses, consult the School of Information Studies section of the most current Graduate and Postdoctoral Studies Programs, Courses and University Regulations publication available at www.mcgill.ca/study or the School website.

School of Information Studies Faculty

Director
France Bouthillier

Professors
J. Andrew Large; B.Sc.(Lond.), Ph.D.(Glas.), Dip.Lib.(Lond.) (CN-Pratt-Grinstad Professor of Information Studies)
Peter F. McNally; B.A.(W. Ont.), B.L.S., M.L.S., M.A.(McG.)

Associate Professors
Jamshid Beheshti; B.A.(S. Fraser), M.L.S., Ph.D.(W. Ont.)
France Bouthillier; B.Ed.(UQAM), M.B.S.I.(Montr.), Ph.D.(Tor.)
Kim Dalkir; B.Sc., M.B.A.(McG.), Ph.D.(C'dia)
Catherine Guastavino; B.Sc.(McG.), M.Sc.(Aix-Marseille), Ph.D.(Paris)
Eun Park; B.A.(Pusan), M.L.IS.(Ill.), M.B.A.(Pitt.), Ph.D.(Calif.-LA)

Assistant Professors
Joan Bartlett; B.Sc., M.L.S., Ph.D.(Tor.)
Carolyn Hank; B.A.(Antioch), M.L.IS.(Kent State), Ph.D. (N.Carolina)
Elaine Ménard; B.A., M.A., M.S.I., Ph.D.(Montr.)

Adjunct Professor
Joy Bennett; B.A., M.A.(C'dia), M.L.IS.(McG.), Ph.D.(C'dia)

Associate Members
Gordon Burr; B.A., M.L.IS.(McG.)
6  Faculty of Engineering

6.1  About the Faculty of Engineering

The Faculty currently includes five engineering departments and two schools, and houses three institutes:

**Departments**

- Chemical Engineering
- Civil Engineering and Applied Mechanics
- Electrical and Computer Engineering
- Mechanical Engineering
- Mining and Materials Engineering

**Schools**

- Architecture
- Urban Planning

**Institutes**

- Institute for Sustainability in Engineering and Design (ISEAD)
- McGill Institute for Advanced Materials (MIAM) (Website: [www.mcgill.ca/miam](http://www.mcgill.ca/miam)) (established by the Faculties of Engineering and Science)
- McGill Institute for Aerospace Engineering (MIAE) (Website: [www.mcgill.ca/miae](http://www.mcgill.ca/miae))
The Faculty serves approximately 2,800 undergraduate students and 1,060 graduate students in a wide variety of academic programs. Undergraduate programs leading to professional bachelor's degrees are offered in all Engineering departments. These programs are designed to qualify graduates for immediate employment in a wide range of industries and for membership in the appropriate professional bodies. Additionally, a non-professional undergraduate degree is offered in the School of Architecture for those who plan to work in related fields not requiring professional qualification.

The curricula are structured to provide suitable preparation for those who plan to continue their education in postgraduate studies either at McGill or elsewhere. The professional degrees in Architecture and Urban Planning are offered at the master’s level and are described in the Graduate and Postdoctoral Studies Programs, Courses and University Regulations found at www.mcgill.ca/study.

The academic programs are divided into required and complementary sections. The required courses emphasize those basic principles which permit graduates to keep abreast of progress in technology throughout their careers. Exposure to current technology is provided by the wide variety of complementary courses which allow students to pursue in depth a particular interest. For program details, refer to section 6.13: Academic Programs.

The Engineering Internship Program provides engineering students with the opportunity to participate in four-, eight-, twelve-, or sixteen-month paid work experiences. Details can be found at www.mcgill.ca/careers4engineers/students/internship. In addition, co-op programs are offered in Mining Engineering and in Materials Engineering.

Postgraduate programs leading to master's and doctoral degrees are offered in all sectors of the Faculty. Numerous areas of specialization are available in each of the departments and schools. All postgraduate programs, including the professional degree programs in Architecture and in Urban Planning, are described in the Graduate and Postdoctoral Studies Programs, Courses and University Regulations found at www.mcgill.ca/study.

6.2 History of the Faculty

The Faculty of Engineering began in 1871 as the Department of Practical and Applied Science in the Faculty of Arts with degree programs in Civil Engineering and Surveying, Mining Engineering and Assaying, and Practical Chemistry. Diploma courses had been offered from 1859, and by 1871 the staff and enrolments had increased sufficiently to justify the creation of the Department. Continued growth led to the formation of the Faculty of Applied Science in 1878. By 1910 there were ten degree programs offered, including Architecture and Railroad Engineering. Subsequent changes in the overall pattern of the University led to the creation of the Faculty of Engineering in 1931 with a departmental structure very similar to that which exists at present.

For a detailed history of the Faculty from 1811 to 2003, see www.mcgill.ca/engineering/faculty/history.

6.3 Engineering Microcomputing Facility

In addition to the services provided by McGill's Information Technology Services, the Faculty, in conjunction with its departments and schools, maintains specialized computing and information resources in support of teaching and research. These vary from desktop computers distributed throughout the Engineering complex to very high-performance scientific workstations found in the research laboratories. Each unit organizes and maintains facilities that are designed around specific roles, e.g., CAD/CAM, microelectronic design, software engineering, circuit simulation, process control, polymers, structural mechanics, metal processing, etc., in addition to systems dedicated to administrative support.

The role of the Faculty is to provide access to computing resources on a 24-hour basis and to provide services that are not covered by individual units. Further information is available at www.mcgill.ca/emf.

6.4 Schulich Library of Science and Engineering

Second largest of the 13 branches of the McGill Library, the Schulich Library of Science and Engineering provides resources and services to support the research and teaching programs in engineering and in the physical sciences. The Library holds more than 260,000 books, journals, and other materials covering the spectrum of engineering and the physical sciences. There is also an extensive collection of online resources, with thousands of electronic journals, e-books, and databases. The following other branch libraries will be of interest to students in the Faculty of Engineering: Blackader-Lauterman Library of Architecture and Art, Life Sciences Library, Macdonald Campus Library, Walter Hitchens Geographic Information Centre, Edward Rosenthal Mathematics and Statistics Library, and the Howard Ross Library of Management.

The Schulich Library of Science and Engineering has over 100 networked computer workstations, and the entire building is a McGill wireless zone. You may choose to work in the quiet or group study areas, and there are copy and print facilities on site. The Library provides support for users with disabilities, including wheelchair access and an adaptive workstation. The Library also offers a range of tours and workshops designed to help users effectively find, assess, and use information.

Visit the website, phone or email us to learn more about the Library's services, collections and facilities. We look forward to seeing you in the Library.

Website: www.mcgill.ca/library/library-using/branches/schulich
Telephone: 514-398-4769
Email: schulich.library@mcgill.ca
6.5 Revisions – Faculty of Engineering

General Engineering

section 6.13.1.1: Bachelor of Engineering (B.Eng.) – General Engineering – Undeclared (30 credits)

Architecture

section 6.13.2.7: Bachelor of Science (B.Sc.) (Architecture) – Architecture (126 credits)

Chemical Engineering

section 6.13.3.6: Bachelor of Engineering (B.Eng.) – Chemical Engineering (141 credits)

Civil Engineering and Applied Mechanics

section 6.13.4.5: Bachelor of Engineering (B.Eng.) – Civil Engineering (139 credits)

Electrical and Computer Engineering

section 6.13.5.4: Bachelor of Engineering (B.Eng.) - Electrical Engineering (138 credits)
section 6.13.5.5: Bachelor of Engineering (B.Eng.) – Honours Electrical Engineering (138 credits)
section 6.13.5.6: Bachelor of Engineering (B.Eng.) - Computer Engineering (139 credits)
section 6.13.5.7: Bachelor of Software Engineering (B.S.E.) - Software Engineering (135 credits)

Mechanical Engineering

section 6.13.6.4: Bachelor of Engineering (B.Eng.) – Mechanical Engineering (142 credits)
section 6.13.6.5: Bachelor of Engineering (B.Eng.) – Honours Mechanical Engineering (142 credits)

Mining and Materials Engineering

section 6.13.7.4.3: Bachelor of Engineering (B.Eng.) – Materials Engineering CO-OP (147 credits)
section 6.13.7.5.3: Bachelor of Engineering (B.Eng.) - Mining Engineering CO-OP (149 credits)

Minor Programs

section 6.13.10.3.1: Bachelor of Engineering (B.Eng.) - Minor Biotechnology (for Engineering Students) (24 credits)
section 6.13.10.11.1: Bachelor of Engineering (B.Eng.) – Minor Materials Engineering (24 credits)

6.6 About the Faculty of Engineering (Undergraduate)

Welcome to the Faculty of Engineering section of the Undergraduate Programs, Courses and University Regulations publication.

The mission of the Faculty of Engineering is to contribute to the advancement of learning and to the socio-economic development of Quebec and Canada, through teaching and research activities at the highest international standards of quality.

Goals:

• To prepare graduates for productive professional careers through the provision of accredited bachelor's programs
• To train students through focused professional programs to attain the forefront of their fields
• To perform research and other scholarly activities which achieve international recognition
• To ensure that technological innovations developed through research are transferred to industry
• To provide a stimulating environment for teaching, learning, and research

In this section, you will find up-to-date information about the Faculty and about the undergraduate programs and courses it offers. For information about graduate studies in the Faculty of Engineering, see the Graduate and Postdoctoral Studies Programs, Courses and University Regulations publication at www.mcgill.ca/study.

You will find information on the following topics (and others):
6.1 Location

Macdonald Engineering Building
817 Sherbrooke Street West
Montreal, Quebec H3A 2K6
Canada

Telephone: 514-398-7250
Faculty website: www.mcgill.ca/engineering

The Student Affairs Office and the Offices of the Associate Dean (Student Affairs) and Associate Dean (Academic) are located within the Engineering Student Centre, at the following address:

3450 University Street
Montreal, Quebec H3A 2A7
Frank Dawson Adams Building, Suite 22

Telephone: 514-398-7257
Student Affairs Office website: www.mcgill.ca/engineering/student/sao

6.2 Administrative Officers

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Christophe Pierre; Ph.D.(Duke), M.Sc.(Princ.), B.Eng.(École Centrale, Paris)</td>
<td>Dean</td>
</tr>
<tr>
<td>James Clark; B.A.Sc., Ph.D.(Br. Col.)</td>
<td>Associate Dean (Academic)</td>
</tr>
<tr>
<td>Subhasis Ghoshal; B.C.E.(Jad.), M.S.(Missouri), Ph.D.(Carn. Mell) (William Dawson Scholar)</td>
<td>Associate Dean (Student Affairs)</td>
</tr>
<tr>
<td>Andrew Kirk; B.Sc.(Brist.), Ph.D.(Lond.) (William Dawson Scholar)</td>
<td>Associate Dean (Research and Graduate Education)</td>
</tr>
<tr>
<td>Lawrence Chen; B.Eng.(McG.), M.A.Sc., Ph.D.(Tor.)</td>
<td>Associate Dean (Academic Affairs)</td>
</tr>
<tr>
<td>Michael Jemtrud; B.A., B.Sc., B.Arch.(Penn. St.), M.Arch.(McG.), M.R.A.I.C.</td>
<td>Director, School of Architecture</td>
</tr>
<tr>
<td>Dimitrios Berk; B.Sc.(Bosphorus), M.E.Sc.(W. Ont.), Ph.D.(Calg.), P.Eng.</td>
<td>Chair, Department of Chemical Engineering</td>
</tr>
<tr>
<td>Van Thanh Van Nguyen; B.Mech.Eng.(Vietnam), M.Civil Eng.(Thailand), Ph.D.(École Poly., Montr.), P.Eng.</td>
<td>Chair, Department of Civil Engineering and Applied Mechanics</td>
</tr>
<tr>
<td>David V. Plant; M.S., Ph.D.(Brown), F.O.S.A. (James McGill Professor)</td>
<td>Chair, Department of Electrical and Computer Engineering</td>
</tr>
<tr>
<td>George Haller; M.Sc.(Univ. Budapest), Ph.D.(Cal. Tech.) (Faculty of Engineering Distinguished Professor)</td>
<td>Chair, Department of Mechanical Engineering</td>
</tr>
<tr>
<td>Steve Yue; B.Sc., Ph.D.(Leeds)</td>
<td>Chair, Department of Mining and Materials Engineering</td>
</tr>
<tr>
<td>Raphaël Fischler; B.Eng.(V. Tech. Eindhoven), M.S.Arch.S., M.C.P.(MIT), Ph.D.(Calif., Berk.)</td>
<td>Director, School of Urban Planning</td>
</tr>
<tr>
<td>Colin Rogers; B.A.Sc., M.A.Sc.(Wat.), Ph.D.(Syd.), P.Eng.</td>
<td>Secretary of Faculty</td>
</tr>
<tr>
<td>Christine Tutt</td>
<td>Director of Administration</td>
</tr>
<tr>
<td>Debbie Morzajew</td>
<td>Manager, EMF</td>
</tr>
<tr>
<td>Debbie Morzajew</td>
<td>Facilities Manager (Acting)</td>
</tr>
</tbody>
</table>
6.7 Degrees and Requirements for Professional Registration

**Non-Professional**

Bachelor of Science (Architecture)

The first professional degree in architecture is the Master of Architecture (Professional). Further information can be found in the *Graduate and Postdoctoral Studies Programs, Courses and University Regulations* publication at [www.mcgill.ca/study](http://www.mcgill.ca/study).

**Professional**

Bachelor of Engineering

Bachelor of Software Engineering

The B.Eng. and B.S.E. programs are accredited by the Canadian Engineering Accreditation Board (CEAB) of Engineers Canada and fulfill the academic requirements for admission to the provincial engineering professional organizations. Engineers Canada has also negotiated agreements with engineering organizations in other countries to grant Canadian licensed engineers the same privileges accorded to professional engineers in those countries. For more information, visit the Engineers Canada website at [www.engineerscanada.ca](http://www.engineerscanada.ca). All students are expected to seek professional registration after graduation.

To become a professional engineer in Canada, a graduate must pass an examination on legal aspects and on the principles of professional practice, and acquire two to four years of engineering experience, depending on the province. Only persons duly registered may use the title “engineer” and perform the professional activities reserved for engineers by provincial laws and regulations.

In Quebec, the professional engineering body is the *Ordre des ingénieurs du Québec* (OIQ). In order to better prepare new graduates for the practice of their profession, McGill organizes seminars in cooperation with the OIQ on various aspects of the profession. The OIQ also has a student section. As soon as you have accumulated 60 credits in a B.Eng. or B.S.E. program, you can join the student section of the OIQ. Registration is free. For more information, visit the OIQ website at [www.oiq.qc.ca](http://www.oiq.qc.ca).

6.8 Admission Requirements

The Faculty of Engineering offers programs leading to the degrees of B.Eng., B.S.E., and B.Sc.(Arch.). Enrolment in Engineering programs is limited. For detailed information on admissions requirements, see the *Undergraduate Admissions Guide* at [www.mcgill.ca/applying](http://www.mcgill.ca/applying).

6.9 Student Progress

The length of the B.Eng., B.S.E., and B.Sc.(Arch.) programs varies depending on the program and basis of admission. You can find the curriculum for your program on the website of your department/school. See [www.mcgill.ca/engineering/departments](http://www.mcgill.ca/engineering/departments) for links to department/school websites.

You must successfully complete the B.Eng., B.S.E., or B.Sc.(Arch.) program within six years of entry. Candidates admitted to a lengthened program, or to a shortened program because of advanced standing, or who are participating in a work term or in the Engineering Internship Program (EIP), will have a correspondingly greater or lesser period in which to complete their program.

Extensions may be granted by the Committee on Standing in cases of serious medical problems or where other similarly uncontrollable factors have affected your progress.

6.10 Student Activities

The campus offers a wide variety of extracurricular activities for students. All are encouraged to participate. Many of these are organized within the Faculty under the auspices of the Engineering Undergraduate Society (EUS). EUS publishes a handbook describing their operations and the activities of various Faculty clubs and societies; you can also find these on their website (see below). All undergraduate students automatically become members of the EUS. Each department and school also has a student association.

For more information about EUS and links to department/school student association websites, visit the EUS website at [www.mcgilleus.ca](http://www.mcgilleus.ca).

For more information on extra-curricular activities and organizations, see [www.mcgill.ca/engineering/student/sao/life](http://www.mcgill.ca/engineering/student/sao/life).
For more information on student design teams and projects, see www.mcgill.ca/engineering/student/sao/studentdesign.

### 6.11 Degrees and Programs Offered

**Engineering Internship Program**

**Co-op Programs**
- Materials Engineering (B.Eng.)
- Mining Engineering (B.Eng.)

**General Engineering Program**
- General Engineering – Undeclared major (Freshman year)

**Major Programs**
- Architecture (B.Sc.(Arch.))
- Chemical Engineering (B.Eng.)
- Civil Engineering (B.Eng.)
- Computer Engineering (B.Eng.)
- Electrical Engineering (B.Eng.)
- Mechanical Engineering (B.Eng.)
- Software Engineering (B.S.E.)

**Honours Programs**
- Electrical Engineering (B.Eng.)
- Mechanical Engineering (B.Eng.)

**Minors**
- Arts
- Biomedical Engineering
- Biotechnology
- Chemistry
- Computer Science
- Construction Engineering and Management
- Economics
- Environment
- Environmental Engineering
- Management Minors: Minor in Finance, Minor in Management, Minor in Marketing, Minor in Operations Management
- Materials Engineering
- Mathematics
- Mining Engineering
- Physics
- Software Engineering
- Technological Entrepreneurship
Employers value experience. Internships (four, eight, twelve, or sixteen months) allow you to gain professional work experience during the course of your undergraduate studies while earning a salary within the average range for entry-level professional positions. Other benefits include the following:

- Improved employment prospects upon graduation, often at a higher starting salary
- The opportunity to explore career options prior to graduation
- The opportunity to develop communication skills and to acquire a business perspective that cannot be learned in school

An internship may begin in January, May, or September. Employers choose the most suitable students for their organization through an application and interview process. While employed by the participating companies, you work on assignments related to your field of study. Internships will be recognized on your transcript as one or more non-credit courses entitled "Industrial Practicum". Successful completion of an internship of eight or more months qualifies you to graduate with the Internship Program designation on your transcript.

### 6.12.1 Student Eligibility

To participate in the Engineering Internship Program, you must:

- have a CGPA of 2.00 or higher;
- be in good financial standing with the University;
- obtain approval from the Engineering Career Centre before registering for or starting your internship;
- be registered full-time in your program before and after your internship;
- remain a degree candidate while on internship;
- return to complete your undergraduate degree at McGill, with a minimum of 15 credits remaining in your program after your internship (i.e., you are not allowed to complete your degree during your internship).

Internship students will receive an automatic extension for the completion of their studies.

International students are eligible (a few restrictions may apply).

For more information, see [www.mcgill.ca/careers4engineers](http://www.mcgill.ca/careers4engineers) or send an email to careers4engineers@mcgill.ca.

**Important Information:**

- While on internship, you are expected to complete any deferrals you may have been granted, regardless of the location of the internship. If you do not write a deferred exam as scheduled, you will receive a final grade of J. The J grade will calculate as a failure in both TGPA and CGPA.
- International students must ensure that their health coverage remains in force during their internship.
- During your time as an intern, you are not considered to be in full-time status. Your government loans will become due and payable within the prescribed grace period (usually six months).
- If you officially accept an internship position but subsequently decline the position, you will no longer be eligible for the Engineering Internship Program.

### 6.13 Academic Programs

The programs and courses in the following sections have been approved for the 2011-2012 session as listed, but the Faculty reserves the right to introduce changes as may be deemed necessary or desirable.

#### 6.13.1 General Engineering Program

The General Engineering Program (GEP) is offered in addition to the Faculty of Engineering’s majors (Chemical, Civil, Computer, Electrical, Materials, Mechanical, Mining, and Software Engineering). The GEP permits students with strong mathematics, physics, and chemistry results in high school to pursue a common first-year curriculum without declaring a particular major program at the time of application. The GEP spans one academic year only (Year 0). Students then apply for placement and continue in an Engineering major program.

For more information about the General Engineering Program, see [www.mcgill.ca/engineering/degrees/general](http://www.mcgill.ca/engineering/degrees/general).

#### 6.13.1.1 Bachelor of Engineering (B.Eng.) – General Engineering – Undeclared (30 credits)

Revision, August 2011. Start of revision.

This is a 30-credit course of study for the first year of a Bachelor of Engineering degree for students who have not completed a Quebec CEGEP diploma. Upon successful completion of these requirements, students must apply for placement and continue in a B.Eng. or B.S.E. program.
### Year 0 (Freshman) Courses

(30 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 110</td>
<td>4</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 120</td>
<td>4</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>FACC 100</td>
<td>1</td>
<td>Introduction to the Engineering Profession</td>
</tr>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>PHYS 131</td>
<td>4</td>
<td>Mechanics and Waves</td>
</tr>
<tr>
<td>PHYS 142</td>
<td>4</td>
<td>Electromagnetism and Optics</td>
</tr>
</tbody>
</table>

### Humanities and Social Sciences, Management Studies, and Law

3 credits at the 200 level or higher from the following departments:

- Anthropology (ANTH)
- Economics (any 200- or 300-level course excluding ECON 217, ECON 227, and ECON 337)
- History (HIST)
- Philosophy (excluding PHIL 210 and PHIL 310)
- Political Science (POLI)
- Psychology (excluding PSYC 204 and PSYC 305, but including PSYC 100)
- Religious Studies (RELG)
- School of Social Work (SWRK)
- Sociology (excluding SOCI 350)

OR one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 528</td>
<td>3</td>
<td>History of Housing</td>
</tr>
<tr>
<td>BUSA 465*</td>
<td>3</td>
<td>Technological Entrepreneurship</td>
</tr>
<tr>
<td>ENVR 203</td>
<td>3</td>
<td>Knowledge, Ethics and Environment</td>
</tr>
<tr>
<td>ENVR 400</td>
<td>3</td>
<td>Environmental Thought</td>
</tr>
<tr>
<td>FACC 220</td>
<td>3</td>
<td>Law for Architects and Engineers</td>
</tr>
<tr>
<td>FACC 500</td>
<td>3</td>
<td>Technology Business Plan Design</td>
</tr>
<tr>
<td>FACC 501</td>
<td>3</td>
<td>Technology Business Plan Project</td>
</tr>
<tr>
<td>INDR 294*</td>
<td>3</td>
<td>Introduction to Labour-Management Relations</td>
</tr>
<tr>
<td>MATH 338</td>
<td>3</td>
<td>History and Philosophy of Mathematics</td>
</tr>
<tr>
<td>MGCR 222*</td>
<td>3</td>
<td>Introduction to Organizational Behaviour</td>
</tr>
<tr>
<td>MGCR 352*</td>
<td>3</td>
<td>Marketing Management 1</td>
</tr>
<tr>
<td>ORGB 321*</td>
<td>3</td>
<td>Leadership</td>
</tr>
<tr>
<td>ORGB 423*</td>
<td>3</td>
<td>Human Resources Management</td>
</tr>
</tbody>
</table>

* Note: Management courses have limited enrolment and registration dates. See Important Dates at: [http://www.mcgill.ca/importantdates/](http://www.mcgill.ca/importantdates/).

Students who successfully complete one or more Science Placement Exams will obtain credit(s) for the equivalent(s), i.e., CHEM 110, CHEM 120, MATH 140, MATH 141, MATH 133, PHYS 131, PHYS 142. Please see [http://www.mcgill.ca/student-records/exam/science](http://www.mcgill.ca/student-records/exam/science) for information on Science Placement Exams.

### Language Courses
If you are not proficient in a certain language, 3 credits will be given for one 6-credit course at the 100 level or higher in that language. A maximum of 3 credits of language courses will be counted toward the B.Eng./B.S.E. Complementary Studies requirement. However, 3 credits may be given for any language course at the 200 level or higher that has a sufficient cultural component. This course must be approved by the Engineering Student Centre (Frank Dawson Adams Building, Room 22).

Revision, August 2011. End of revision.

6.13.2 School of Architecture

6.13.2.1 Location

Macdonald-Harrington Building, Room 201
815 Sherbrooke Street West
Montreal, Quebec H3A 2K6

Telephone: 514-398-6700
Fax: 514-398-7372
Website: www.mcgill.ca/architecture

6.13.2.2 About the School of Architecture

The School of Architecture at McGill University was founded in 1896. Our mission is to educate professionals who will contribute to the socio-economic and cultural development of Quebec, Canada and the broader global community through responsible participation in the process of the design, construction, and interpretation of the built environment.

The School offers the non-professional B.Sc.(Arch.) program, the M.Arch. (Professional) program, and post-professional research programs, including the M.Arch. (Post-professional) and Ph.D.

6.13.2.3 Architectural Certification in Canada

In Canada, all provincial associations recommend a degree from an accredited professional degree program as a prerequisite for licensure. The Canadian Architectural Certification Board (ACCB), which is the sole agency authorized to accredit Canadian professional degree programs in architecture, recognizes two types of accredited degrees: the Bachelor of Architecture and the Master of Architecture. A program may be granted a five-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards.

Master's degree programs may consist of a preprofessional undergraduate degree and a professional graduate degree, which, when earned sequentially, comprise an accredited professional education. However, the preprofessional degree is not, by itself, recognized as an accredited degree.

Since all provincial associations in Canada recommend any applicant for licensure to have graduated from a CACB-accredited program, obtaining such a degree is an essential aspect of preparing for the professional practice of architecture. While graduation from a CACB-accredited program does not assure registration, the accrediting process is intended to verify that each accredited program substantially meets those standards that, as a whole, comprise an appropriate education for an architect.

6.13.2.4 Programs of Study

Students in the B.Sc.(Arch.) program who intend to proceed to the professional degree must satisfy certain minimum requirements. Students must:

- complete the B.Sc.(Arch.) degree, including the series of required and complementary courses stipulated for professional studies, with a minimum CGPA of 3.00;
- submit a portfolio of work executed in the sequence of six design studios, as well as samples of professional and personal work;
- complete the minimum period of relevant work experience according to the current Work Experience Guidelines (see www.mcgill.ca/architecture/bboard/bscmai/workexperience).

Further information on the M.Arch. (Professional) program and application procedures is available at www.mcgill.ca/architecture.

6.13.2.4.1 Student Exchanges

A limited number of qualified students may participate in an exchange with schools of architecture at other universities that have agreements with the McGill School of Architecture, for a maximum of one term in the second year of the B.Sc.(Arch.) program. These include the following: Università Iuav di Venezia (Venice, Italy); Fakultät für Raumplanung und Architektur, Technische Universität Wien (Vienna, Austria); Institut Supérieur d'Architecture, Saint-Luc Bruxelles (Brussels, Belgium); Ecole Nationale Supérieure d'architecture de Grenoble (Grenoble, France); Ecole Nationale Supérieure d'architecture de Clermont-Ferrand (Clermont-Ferrand, France); Facoltà di Architettura Civile Politecnico di Milano (Boviso) (Milan, Italy); The Royal Danish Academy of Fine Arts, School of Architecture (Copenhagen, Denmark).

6.13.2.5 Ancillary Academic Facilities

Laboratories and Workshops

Architectural Workshops – David Speller, Technician
### Laboratories and Workshops

Communications Laboratory, including Photo Lab – Carrie Henzie, Media Technician

Computers in Architecture Laboratories – Professor Aaron Sprecher

### Library


### Collections

Visual Resources Collection, including slides, film, video and other materials – Dr. Annmarie Adams

The John Bland Canadian Architecture Collection, housed in the Blackader-Lauterman Library – Ann Marie Holland, Liaison Librarian

Orson Wheeler Architectural Model Collection – Professor Pieter Sijpkes

Materials Resource Centre – Dr. Avi Friedman

---

#### 6.13.2.6 School of Architecture Faculty

**Director**

Michael Jemtrud

**Emeritus Professors**

Derek Drummond; B. Arch. (McG.), F.R.A.I.C., O.A.A. (*William C. Macdonald Emeritus Professor of Architecture*)

Adrian Sheppard; B. Arch. (McG.), M. Arch. (Yale), F.R.A.I.C., O.A.Q., A.A.P.P.Q.


**Professors**

Annmarie Adams; B. A. (McG.), M. Arch., Ph. D. (Calif., Berk.), M.R.A.I.C. (*William C. Macdonald Professor of Architecture*)

Vikram Bhatt; N. Dip. Arch. (Ahmedabad), M. Arch. (McG.), M. R. A.I.C.

Avi Friedman; B. Arch. (Technion), M. Arch. (McG.), Ph. D. (Montr.), O. A. Q., I.A.A.

Alberto Pérez-Gómez; Dipl.-Eng. (Nat. Pol. Inst., Mexico), M. A., Ph. D. (Essex) (*Saidye Rosner Bronfman Professor of Architectural History*)

**Associate Professors**

Martin Bressani; B. Sc. (Arch.), B. Arch. (McG.), M. Sc. Arch., Diplômes des Études approfondies, Docteur de l’Université de Paris-Sorbonne (Paris IV)

Ricardo L. Castro; B. Arch. (Los Andes), M. Arch., M. A. (Art History) (Ore.), F. R. A. I. C.

David Covo; B. Sc. (Arch.), B. Arch. (McG.), F. R. A. I. C., O. A. Q.

Michael Jemtrud; B. Sc., B. A., B. Arch. (Penn. St.), M. Arch. (McG.)

Robert Mellin; B. Arch., M. Sc. (Arch.) (Penn. St.), M. Arch. (McG.), M. Sc., Ph. D. (Penn.), M. R. A. I. C., N. A. A.

Pieter Sijpkes; B. Sc. (Arch.), B. Arch. (McG.)

**Assistant Professors**

Nik Luka; B. A. A. (Ryerson), M. Arch. (Laval), Ph. D. (Tor.), M. C. I. P.

Aaron Sprecher; B. Arch. (Bezalel), M. Arch. (Calif.-LA)

**Adjunct Professors**

Howard Davies

François Émond

Julia Gersovitz

Phyllis Lambert
Adjunct Professors

Joanna Nash
Maria Mingallon
Mark Poddubiuk
Conor Sampson
Jozef Zorko

Planetary Society Visiting Professor in Architecture

Torben Berns

Course Lecturers

Tom Balaban
Sinisha Brdar
Nancy Dunton
Leila Marie Farah
Matt Fisher
Maxime Gagné
Dominique Laroche
Philippe Lupien
Paula Meijerink
Suresh Perera
Carlos Rueda
Pierina Saia

Senior Critic

Dan Hanganu

Visiting Critics and Lecturers

Each year, visitors are involved in the teaching of certain courses as critics and lecturers. These visitors change from year to year. The following were visitors for 2010:


6.13.2.7 Bachelor of Science (B.Sc.) (Architecture) – Architecture (126 credits)

Revision, August 2011. Start of revision.

Program credit weight: 126 credit

Program credit weight for CEGEP students: 100 credits

McGill’s professional program in Architecture is divided into two parts. The first part is an eight-term design-based program (six-term program for students entering with the Quebec Diploma of Collegial Studies in Pure and Applied Science or the equivalent) leading to a non-professional degree, Bachelor of Science (Architecture). Applicants whose background includes a university degree in an area not related to architecture should apply to the B.Sc.(Arch.) program. For detailed information about admission procedures and requirements, please see the Undergraduate Admissions Guide at http://www.mcgill.ca/applying.

The second part, for students with the McGill B.Sc.(Arch.) degree or equivalent non-professional undergraduate architecture degree, is either a three-term (Fall/Winter/Summer) or a two-year program leading to the Master of Architecture (Professional) degree. There are two options for the completion of the M.Arch. (Professional) program: Design Studio (45 credits) and Design Studio-Directed Research (60 credits). The M.Arch. (Professional) degree is accredited.
by the Canadian Architectural Certification Board (CACB), and is recognized as accredited by the National Council of Architectural Registration Boards (NCARB) in the U.S.

For more information on program structure and courses, visit the School of Architecture website at http://www.mcgill.ca/architecture.

Required Year 0 (Freshman) Courses

26 credits

Generally, students admitted to the Architecture program from Quebec CEGEPs are granted transfer credit for the Year 0 (Freshman) courses and enter a 100-credit (six-term) program.


CHEM 110 (4)
   General Chemistry 1
CHEM 120 (4)
   General Chemistry 2
MATH 133 (3)
   Linear Algebra and Geometry
MATH 140 (3)
   Calculus 1
MATH 141 (4)
   Calculus 2
PHYS 131 (4)
   Mechanics and Waves
PHYS 142 (4)
   Electromagnetism and Optics

Required Non-Departmental Courses

15 credits

Note: Candidates intending not to proceed to the M.Arch. (Professional) degree may substitute other courses of equal total credit weight for any course with an asterisk (*) in the list below.

CIVE 284 (4)
   Structural Engineering Basics
CIVE 385* (3)
   Structural Steel and Timber Design
CIVE 388* (3)
   Foundation and Concrete Design
CIVE 492* (2)
   Structures
FACC 220 (3)
   Law for Architects and Engineers

Required Architectural Courses

73 credits

ARCH 201 (6)
   Communication, Behaviour and Architecture
ARCH 202 (6)
   Architectural Graphics and Elements of Design
ARCH 221 (2)
   Architectural Drawing
ARCH 240 (3)
   Organization of Materials in Buildings
ARCH 241 (3)
   Architectural Structures
ARCH 250 (3)
   Architectural History 1
ARCH 251 (3)
   Architectural History 2
ARCH 303 (6)
   Design and Construction 1
ARCH 304 (6)
   Design and Construction 2
ARCH 325 (2)
   Architectural Sketching
ARCH 342 (3)
   Digital Representation
ARCH 354 (3)
   Architectural History 3
ARCH 355 (3)
   Architectural History 4
ARCH 375 (2)
   Landscape
ARCH 377 (3)
   Energy, Environment and Buildings
ARCH 405 (6) Design and Construction 3
ARCH 406 (6) Design and Construction 4
ARCH 447 (2) Lighting
ARCH 451 (2) Building Regulations and Safety
ARCH 512 (3) Architectural Modelling

**Complementary Courses**

6 credits from the following:

ARCH 318 (3) Design Sketching
ARCH 319 (3) The Camera and Perception
ARCH 352 (3) Art and Theory of House Design
ARCH 363 (2) Structure, Organization and Form
ARCH 378 (3) Site Usage
ARCH 379 (3) Summer Course Abroad
ARCH 383 (3) Geometry and Architecture
ARCH 461 (1) Freehand Drawing and Sketching
ARCH 471 (2) Computer-Aided Building Design
ARCH 490 (2) Selected Topics in Design
ARCH 514 (4) Community Design Workshop
ARCH 515 (3) Sustainable Design
ARCH 517 (3) Sustainable Residential Development
ARCH 520 (3) Montreal: Urban Morphology
ARCH 521 (3) Structure of Cities
ARCH 522 (3) History of Domestic Architecture in Quebec
ARCH 523 (3) Significant Texts and Buildings
ARCH 525 (3) Seminar on Analysis and Theory
ARCH 526 (3) Philosophy of Structure
ARCH 527 (3) Civic Design
ARCH 528 (3) History of Housing
ARCH 529 (3) Housing Theory
ARCH 531 (3) Architectural Intentions Vitruvius - Renaissance
ARCH 532 (3) Origins of Modern Architecture
ARCH 533 (3) New Approaches to Architectural History
ARCH 534 (3) Architectural Archives
ARCH 535 (3) History of Architecture in Canada
ARCH 536 (3) Heritage Conservation
ARCH 540 (3) Selected Topics in Architecture 1
ARCH 541 (3) Selected Topics in Architecture 2
ARCH 554 (2) Mechanical Services
ARCH 555 (2) Environmental Acoustics
ARCH 564 (3) Design for Development
ARCH 566 (3) Cultural Landscapes Seminar
OCC1 442 (2) Environments for the Disabled
Electives
6 credits of elective courses outside the School of Architecture must be completed, subject to approval by the Student Adviser.

Revision, August 2011. End of revision.

6.13.3 Department of Chemical Engineering

6.13.3.1 Location

M.H. Wong Building, Room 3060
3610 University Street
Montreal, Quebec H3A 2B2
Telephone: 514-398-4494
Fax: 514-398-6678
Website: www.mcgill.ca/chemeng

6.13.3.2 About the Department of Chemical Engineering

The central purpose of engineering is to pursue solutions to technological problems in order to satisfy the needs and desires of society. Chemical engineers are trained to solve the kinds of problems that are typically found in the “chemical process industries”, which include the chemical manufacturing, plastics, water treatment, pulp and paper, petroleum refining, ceramics, and paint industries, as well as substantial portions of the food processing, textile, nuclear energy, biochemical, biomedical, and pharmaceutical industries. The technological problems and opportunities in these industries are often closely linked to social, economic, and environmental concerns. For this reason, practitioners of chemical engineering often deal with these questions when they are working in management, pollution abatement, product development, marketing, and equipment design.

By means of complementary courses, students can also obtain further depth in technical areas and breadth in non-technical subjects. Some students elect to complete a minor in biotechnology, management, materials engineering, computer science, environmental engineering, chemistry, or another minor (see section 6.13.10: Minor Programs for minors available to engineering students).

The solution to many environmental problems requires an understanding of technological principles. A Chemical Engineering degree provides an ideal background. In addition to relevant material learned in the core program, a selection of environmental complementary courses and minor programs is available. The involvement of many Chemical Engineering staff members in environmental research provides the opportunity for undergraduate students to carry out research projects in this area.

The curriculum also provides the preparation necessary to undertake postgraduate studies leading to the M.Eng. or Ph.D. degrees in Chemical Engineering. Students completing this curriculum acquire a broad, balanced education in the natural sciences with the accent on application. Thus, for those who do not continue in Chemical Engineering, it provides an exceptionally balanced education in applied science. For others, it will form the basis of an educational program that may continue with a variety of studies such as business administration, medicine, or law. Versatility is, then, one of the most valuable characteristics of the graduate of the Chemical Engineering program.

6.13.3.3 Academic Program

The Chemical Engineering program comprises 141 credits (115 credits for those who completed the Quebec CEGEP program in Pure and Applied Sciences). Certain students who take advantage of Summer session courses can complete the program in three calendar years.

In some cases, students from university science disciplines have sufficient credits to complete the requirements for the B.Eng. (Chemical) program in two years. Those concerned should discuss this with their adviser.

Students must obtain a grade of C or better in all core courses. For the Department of Chemical Engineering, core courses include all required courses (departmental and non-departmental) as well as complementary courses (departmental).

6.13.3.4 Canadian Society for Chemical Engineering

The Chemical Engineering Student Society has for many years been affiliated both with the CSChE (Canadian Society for Chemical Engineering) and with the AIChE (American Institute of Chemical Engineers). For a nominal fee, students receive Canadian Chemical News, a monthly publication, and the AIChE Student Members Bulletin as well as other privileges of student membership in the two societies. The student chapter also organizes a series of local social, educational, and sporting events. For example, recent events have included student-professor banquets and Christmas parties, dances, speakers, broomball games, and joint meetings with the Montreal Section of the CSChE. The latter gives students a chance to mix with practising chemical engineers.

6.13.3.5 Department of Chemical Engineering Faculty

Chair
Dimitrios Berk
### Emeritus Professors

<table>
<thead>
<tr>
<th>Name</th>
<th>Degrees and Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>John M. Dealy</td>
<td>B.S. (Kansas), M.S.E., Ph.D. (Mich.), Eng.</td>
</tr>
<tr>
<td>Musa R. Kamal</td>
<td>B.S. (Ill.), M.S., Ph.D. (Car. Mell), Eng.</td>
</tr>
<tr>
<td>Juan H. Vera</td>
<td>B.Mat. (Chile), Ing. Quim. (U.T.E.), M.S. (Calif., Berk.), Dr.Ing. (Santa Maria), Ing.</td>
</tr>
</tbody>
</table>

### Professors

<table>
<thead>
<tr>
<th>Name</th>
<th>Degrees and Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>David G. Cooper</td>
<td>B.Sc., Ph.D. (Tor.)</td>
</tr>
<tr>
<td>Alejandro D. Rey</td>
<td>B.Ch.Eng. (CCNY), Ph.D. (Calif., Berk.) \textit{(James McGill Professor)}</td>
</tr>
</tbody>
</table>

### Associate Professors

<table>
<thead>
<tr>
<th>Name</th>
<th>Degrees and Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimitrios Berk</td>
<td>B.Sc. (Bosphorus), M.E.Sc. (W. Ont.), Ph.D. (Calg.), P.Eng.</td>
</tr>
<tr>
<td>Sylvain Coulombe</td>
<td>B.Sc., M.Sc.A. (Sher.), Ph.D. (McG.), Ing.</td>
</tr>
<tr>
<td>Reghan James Hill</td>
<td>B.Eng., Ph.D. (C'nell)</td>
</tr>
<tr>
<td>Richard L. Leask</td>
<td>B.A.Sc., M.A.Sc. (Wat.), Ph.D. (Tor.), P.Eng.</td>
</tr>
<tr>
<td>Milan Maric</td>
<td>B.Sc., B.Eng. &amp; Mgmt (McM.), Ph.D. (Minn.), P.Eng.</td>
</tr>
<tr>
<td>Jean-Luc Meunier</td>
<td>Dipl. Ing., EPFL (Lausanne), M.Sc., Ph.D., INRS (Varennes), Ing.</td>
</tr>
<tr>
<td>Sasha Omanovic</td>
<td>Dipl. Ing., Ph.D. (Zagreb), P.Eng.</td>
</tr>
<tr>
<td>Thomas Quinn</td>
<td>B.Sc. (Qu.), S.M., Ph.D. (MIT)</td>
</tr>
<tr>
<td>Phillip Servio</td>
<td>B.Sc., Ph.D. (Minn.)</td>
</tr>
<tr>
<td>Nathalie Tufenkji</td>
<td>B.Eng. (McG.), M.Sc., Ph.D. (Yale)</td>
</tr>
<tr>
<td>Viviane Yargeau</td>
<td>B.Eng., M.Sc.A., Ph.D. (Sher.), Ing.</td>
</tr>
</tbody>
</table>

### Assistant Professors

<table>
<thead>
<tr>
<th>Name</th>
<th>Degrees and Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elizabeth Jones</td>
<td>B.A.Sc. (Wat.), M.S., Ph.D. (Calif. Tech.)</td>
</tr>
<tr>
<td>Jeff Gostick</td>
<td>B.Eng. (Ryerson), M.A.Sc., Ph.D. (Wat.)</td>
</tr>
<tr>
<td>Anne-Marie Kietzig</td>
<td>B.Eng. (T.U. Berlin), Ph.D. (Br. Col.)</td>
</tr>
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</table>

### Post-Retirement

<table>
<thead>
<tr>
<th>Name</th>
<th>Degrees and Institutions</th>
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</thead>
<tbody>
<tr>
<td>W.J. Murray Douglas</td>
<td>B.Sc. (Qu.), M.S.E., Ph.D. (Mich.)</td>
</tr>
</tbody>
</table>

### PAPRICAN Adjunct Professor

<table>
<thead>
<tr>
<th>Name</th>
<th>Degrees and Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>George J. Kubes</td>
<td>B.Eng., M.Eng. (Prague), Ph.D. (Bratislava)</td>
</tr>
</tbody>
</table>

### Adjunct Professors

<table>
<thead>
<tr>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>T. Addona</td>
</tr>
<tr>
<td>T. Alexakis</td>
</tr>
<tr>
<td>V. Bhambani</td>
</tr>
<tr>
<td>P. Bisaillon</td>
</tr>
<tr>
<td>R. Campeau</td>
</tr>
<tr>
<td>M. Davidovsky</td>
</tr>
<tr>
<td>M. Fokas</td>
</tr>
<tr>
<td>B. McNicoll</td>
</tr>
<tr>
<td>N. Peters</td>
</tr>
<tr>
<td>B.E. Sarkis</td>
</tr>
</tbody>
</table>
Adjunct Professors

B. Théorét
R.C. Urquhart
L. Yerushalmi

6.13.3.6 Bachelor of Engineering (B.Eng.) – Chemical Engineering (141 credits)

Revision, August 2011. Start of revision.

Program credit weight: 141-144 credits
Program credit weight for CEGEP students: 115 credits

The discipline of chemical engineering is distinctive in being based equally on physics, mathematics, and chemistry. Application of these three fundamental sciences is basic to a quantitative understanding of the process industries. Those with an interest in the fourth fundamental science, biology, will find several courses in the chemical engineering curriculum that integrate aspects of the biological sciences relevant to process industries such as food processing, fermentation, biomedical, and water pollution control. Courses on the technical operations and economics of the process industries are added to this foundation. The core curriculum concludes with process design courses taught by practising design engineers. Problem-solving, experimenting, planning, and communication skills are emphasized in courses throughout the core curriculum.

Certain students who take advantage of Summer session courses can complete the departmental program in three calendar years.

In some cases, students from university science disciplines have sufficient credits to complete the requirements for the B.Eng. (Chemical) program in two years. Those concerned should discuss this with their adviser.

Students must obtain a grade of C or better in all core courses. For the Department of Chemical Engineering, core courses include all required courses (departmental and non-departmental) as well as complementary courses (departmental).

Note to CEGEP students

If you have successfully completed a course at CEGEP that is equivalent to CHEM 212 or CHEM 234, you may request exemption for either or both courses. However, you must replace each course with another university-level course of an equal number of credits or more — McGill courses beginning with subject codes ATOC, BIOL, CHEM, EPSC, ESYS, PHYS are acceptable substitutes.

Required Year 0 (Freshman) Courses

29 credits

Generally, students admitted to Engineering from Quebec CEGEPs are granted transfer credit for these Year 0 (Freshman) courses and enter a 115-credit program.


<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 110</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 120</td>
<td>4</td>
</tr>
<tr>
<td>MATH 133</td>
<td>3</td>
</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
</tr>
<tr>
<td>MATH 141</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 131</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 142</td>
<td>4</td>
</tr>
</tbody>
</table>

AND 3 credits selected from the approved list of courses in Humanities and Social Sciences, Management Studies, and Law, listed below under Complementary Studies (Group B).

Note: FACC 100 (Introduction to the Engineering Profession) must be taken during the first year of study.

Required Non-Departmental Courses

24 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 212</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 234</td>
<td>3</td>
</tr>
<tr>
<td>COMP 208</td>
<td>3</td>
</tr>
<tr>
<td>FACC 100*</td>
<td>1</td>
</tr>
</tbody>
</table>
**FACC 400** (1) Engineering Professional Practice

**MATH 262** (3) Intermediate Calculus

**MATH 263** (3) Ordinary Differential Equations for Engineers

**MATH 264** (3) Advanced Calculus for Engineers

**MIME 310** (3) Engineering Economy

* Note: FACC 100 (Introduction to the Engineering Profession) must be taken during the first year of study.

**Required Chemical Engineering Courses**

73 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEE 200</td>
<td>(4)</td>
<td>Introduction to Chemical Engineering</td>
</tr>
<tr>
<td>CHEE 204</td>
<td>(3)</td>
<td>Chemical Manufacturing Processes</td>
</tr>
<tr>
<td>CHEE 220</td>
<td>(3)</td>
<td>Chemical Engineering Thermodynamics</td>
</tr>
<tr>
<td>CHEE 291</td>
<td>(4)</td>
<td>Instrumental Measurement Laboratory</td>
</tr>
<tr>
<td>CHEE 310</td>
<td>(3)</td>
<td>Physical Chemistry for Engineers</td>
</tr>
<tr>
<td>CHEE 314</td>
<td>(4)</td>
<td>Fluid Mechanics</td>
</tr>
<tr>
<td>CHEE 315</td>
<td>(4)</td>
<td>Heat and Mass Transfer</td>
</tr>
<tr>
<td>CHEE 340</td>
<td>(3)</td>
<td>Process Modelling</td>
</tr>
<tr>
<td>CHEE 351</td>
<td>(3)</td>
<td>Separation Processes</td>
</tr>
<tr>
<td>CHEE 360</td>
<td>(1)</td>
<td>Technical Paper 1</td>
</tr>
<tr>
<td>CHEE 370</td>
<td>(3)</td>
<td>Elements of Biotechnology</td>
</tr>
<tr>
<td>CHEE 380</td>
<td>(3)</td>
<td>Materials Science</td>
</tr>
<tr>
<td>CHEE 392</td>
<td>(4)</td>
<td>Project Laboratory 1</td>
</tr>
<tr>
<td>CHEE 393</td>
<td>(5)</td>
<td>Project Laboratory 2</td>
</tr>
<tr>
<td>CHEE 423</td>
<td>(4)</td>
<td>Chemical Reaction Engineering</td>
</tr>
<tr>
<td>CHEE 453</td>
<td>(4)</td>
<td>Process Design</td>
</tr>
<tr>
<td>CHEE 455</td>
<td>(4)</td>
<td>Process Control</td>
</tr>
<tr>
<td>CHEE 456</td>
<td>(2)</td>
<td>Design Project 1</td>
</tr>
<tr>
<td>CHEE 457</td>
<td>(5)</td>
<td>Design Project 2</td>
</tr>
<tr>
<td>CHEE 462</td>
<td>(1)</td>
<td>Technical Paper 2</td>
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<tr>
<td>CHEE 474</td>
<td>(3)</td>
<td>Biochemical Engineering</td>
</tr>
<tr>
<td>CHEE 484</td>
<td>(3)</td>
<td>Materials Engineering</td>
</tr>
</tbody>
</table>

**Technical Complementaries**

9 credits

The purpose of this requirement is to provide students with an area of specialization within the broad field of chemical engineering. Alternatively, some students use the technical complementsaries to increase the breadth of their chemical engineering training.

At least two courses (4-7 credits) must be chosen from the list below. The remaining course(s) (2-5 credits) may be taken from other suitable undergraduate courses in the Faculty of Engineering, with departmental permission.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOT 505*</td>
<td>(3)</td>
<td>Selected Topics in Biotechnology</td>
</tr>
<tr>
<td>CHEE 363</td>
<td>(2)</td>
<td>Projects Chemical Engineering 1</td>
</tr>
<tr>
<td>CHEE 438</td>
<td>(3)</td>
<td>Engineering Principles in Pulp and Paper Processes</td>
</tr>
<tr>
<td>CHEE 452</td>
<td>(3)</td>
<td>Particulate Systems</td>
</tr>
<tr>
<td>CHEE 458</td>
<td>(3)</td>
<td>Computer Applications</td>
</tr>
<tr>
<td>Course Code</td>
<td>Credits</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
<td>--------------</td>
</tr>
<tr>
<td>CHEE 464</td>
<td>2</td>
<td>Projects Chemical Engineering 2</td>
</tr>
<tr>
<td>CHEE 487</td>
<td>3</td>
<td>Chemical Processing: Electronics Industry</td>
</tr>
<tr>
<td>CHEE 494**</td>
<td>3</td>
<td>Research Project and Seminar 1</td>
</tr>
<tr>
<td>CHEE 495**</td>
<td>4</td>
<td>Research Project and Seminar 2</td>
</tr>
<tr>
<td>CHEE 496**</td>
<td>3</td>
<td>Environmental Research Project</td>
</tr>
<tr>
<td>CHEE 510</td>
<td>3</td>
<td>Advanced Separation Processes</td>
</tr>
<tr>
<td>CHEE 515+</td>
<td>3</td>
<td>Material Surfaces: A Biomimetic Approach</td>
</tr>
<tr>
<td>CHEE 541</td>
<td>3</td>
<td>Electrochemical Engineering</td>
</tr>
<tr>
<td>CHEE 543</td>
<td>3</td>
<td>Plasma Engineering</td>
</tr>
<tr>
<td>CHEE 561</td>
<td>3</td>
<td>Introduction to Soft Tissue Biophysics</td>
</tr>
<tr>
<td>CHEE 562</td>
<td>3</td>
<td>Engineering Principles in Physiological Systems</td>
</tr>
<tr>
<td>CHEE 563***</td>
<td>3</td>
<td>Biofluids and Cardiovascular Mechanics</td>
</tr>
<tr>
<td>CHEE 571</td>
<td>3</td>
<td>Small Computer Applications: Chemical Engineering</td>
</tr>
<tr>
<td>CHEE 582</td>
<td>3</td>
<td>Polymer Science &amp; Engineering</td>
</tr>
<tr>
<td>CHEE 584</td>
<td>3</td>
<td>Polymer Processing</td>
</tr>
<tr>
<td>CHEE 585</td>
<td>3</td>
<td>Foundations of Soft Matter</td>
</tr>
<tr>
<td>CHEE 591</td>
<td>3</td>
<td>Environmental Bioremediation</td>
</tr>
<tr>
<td>CHEE 592+</td>
<td>3</td>
<td>Industrial Air Pollution Control</td>
</tr>
<tr>
<td>CHEE 593+</td>
<td>3</td>
<td>Industrial Water Pollution Control</td>
</tr>
<tr>
<td>CHEE 594</td>
<td>3</td>
<td>Biocolloids in Environmental Systems</td>
</tr>
<tr>
<td>CHEE 595</td>
<td>3</td>
<td>Energy Recovery, Use, &amp; Impact</td>
</tr>
<tr>
<td>CIVE 430+</td>
<td>3</td>
<td>Water Treatment and Pollution Control</td>
</tr>
<tr>
<td>MECH 534+</td>
<td>3</td>
<td>Air Pollution Engineering</td>
</tr>
<tr>
<td>MECH 563***</td>
<td>3</td>
<td>Biofluids and Cardiovascular Mechanics</td>
</tr>
<tr>
<td>MIME 515+</td>
<td>3</td>
<td>Material Surfaces: A Biomimetic Approach</td>
</tr>
</tbody>
</table>

* BIOT 505 can only be chosen by students taking the Minor in Biotechnology.  
** Students may choose only one project course: CHEE 494, CHEE 495, or CHEE 496.  
*** Students choose either CHEE 563 or MECH 563.  
+ Students may choose only one course in each of the following sets:  
  - CHEE 515 or MIME 515  
  - CHEE 592 or MECH 534  
  - CHEE 593 or CIVE 430  

### Complementary Studies

6 credits (9 credits for students from Quebec CEGEPs)

#### Group A - Impact of Technology on Society

3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 212</td>
<td>3</td>
<td>Anthropology of Development</td>
</tr>
<tr>
<td>BTEC 502</td>
<td>3</td>
<td>Biotechnology Ethics and Society</td>
</tr>
<tr>
<td>CIVE 469</td>
<td>3</td>
<td>Infrastructure and Society</td>
</tr>
<tr>
<td>ECON 225</td>
<td>3</td>
<td>Economics of the Environment</td>
</tr>
<tr>
<td>ECON 347</td>
<td>3</td>
<td>Economics of Climate Change</td>
</tr>
<tr>
<td>ENVR 201</td>
<td>3</td>
<td>Society, Environment and Sustainability</td>
</tr>
</tbody>
</table>
GEOG 200 (3) Geographical Perspectives: World Environmental Problems
GEOG 203 (3) Environmental Systems
GEOG 205 (3) Global Change: Past, Present and Future
GEOG 302 (3) Environmental Management 1
MECH 526 (3) Manufacturing and the Environment
MGPO 440* (3) Strategies for Sustainability
MIME 308 (3) Social Impact of Technology
PHIL 343 (3) Biomedical Ethics
RELG 270 (3) Religious Ethics and the Environment
SOCI 235 (3) Technology and Society
SOCI 312 (3) Sociology of Work and Industry
URBP 201 (3) Planning the 21st Century City

* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

**Group B - Humanities and Social Sciences, Management Studies, and Law**

3 credits (6 credits for students from Quebec CEGEPs) at the 200 level or higher from the following departments:

- Anthropology (ANTH)
- Economics (any 200- or 300-level course excluding ECON 217, ECON 227, and ECON 337)
- History (HIST)
- Philosophy (excluding PHIL 210 and PHIL 310)
- Political Science (POLI)
- Psychology (excluding PSYC 204 and PSYC 305, but including PSYC 100)
- Religious Studies (RELG)
- School of Social Work (SWRK)
- Sociology (excluding SOCI 350)

OR one of the following:

- ARCH 528 (3) History of Housing
- BUSA 465* (3) Technological Entrepreneurship
- ENVR 203 (3) Knowledge, Ethics and Environment
- ENVR 400 (3) Environmental Thought
- FACC 220 (3) Law for Architects and Engineers
- FACC 500 (3) Technology Business Plan Design
- FACC 501 (3) Technology Business Plan Project
- INDR 294* (3) Introduction to Labour-Management Relations
- MATH 338 (3) History and Philosophy of Mathematics
- MGCR 222* (3) Introduction to Organizational Behaviour
- MGCR 352* (3) Marketing Management 1
- ORGB 321* (3) Leadership
- ORGB 423* (3) Human Resources Management

* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

**Language Courses**

If you are not proficient in a certain language, no more than 3 credits will be given for one 6-credit course at the 100 level or higher in that language. A maximum of 3 credits of language courses will be counted toward the Complementary Studies requirement.
However, 3-6 credits may be given for language courses at the 200 level or higher that have a sufficient cultural component. These courses must be approved by the Engineering Student Centre (Frank Dawson Adams Building, Room 22).

Revision, August 2011. End of revision.

6.13.3.6.1 More about the B.Eng. Degree in Chemical Engineering

Courses CHEE 582 and CHEE 584 comprise a Polymeric Materials sequence. Additional courses in this area are available in the Chemistry Department (e.g., CHEM 455) or at the graduate level (CHEE 681 to CHEE 684). The Department has considerable expertise in the polymer area.

Courses CHEE 370 and CHEE 474 make up a sequence in Biochemical Engineering-Biotechnology. Students interested in this area may take additional courses, particularly those offered by the Department of Food Science and Agricultural Chemistry, Faculty of Agricultural and Environmental Sciences, and courses in biochemistry and microbiology. The food, beverage, and pharmaceutical industries are large industries in the Montreal area and these courses are relevant to these industries and to the new high-technology applications of biotechnology.

The third area in which there is a sequence of courses is Pollution Control. The Department offers three courses in this area: CHEE 591, CHEE 592, and CHEE 593. As some water pollution control problems are solved by microbial processes, course CHEE 474 is also relevant to the pollution control area.

Additional courses in this area are listed in the section 6.13.10.8: Environmental Engineering Minor.

A Minor in Biotechnology is also offered by the Faculties of Engineering and Science with emphasis on molecular biology and chemical engineering processes. A full description of the program appears in the section 6.13.10.3: Biotechnology Minor.

Note that many of the technical complementaries are offered only in alternate years. Students should, therefore, plan their complementaries as far ahead as possible. With the approval of the instructor and Academic Adviser, students may take graduate (500-level) CHEE courses as technical complementaries.

6.13.4 Department of Civil Engineering and Applied Mechanics

6.13.4.1 Location

Macdonald Engineering Building, Room 492
817 Sherbrooke Street West
Montreal, Quebec H3A 2K6
Telephone: 514-398-6860
Fax: 514-398-7361
Website: www.mcgill.ca/civil

6.13.4.2 About the Department of Civil Engineering and Applied Mechanics

Civil engineers have traditionally applied scientific and engineering knowledge to the task of providing the built environment, from its conception and planning to its design, construction, maintenance, and rehabilitation. Examples include buildings, bridges, roads, railways, dams, and facilities for water supply and treatment, and waste disposal. With the ageing and deterioration of an already vast infrastructure, its maintenance and rehabilitation has become an increasingly important role of the civil engineering profession. Also, with worldwide concern about the detrimental impact of human activities on the environment, civil engineers are now in the forefront of developing and providing the means for both prevention and remediation of many aspects of environmental pollution.

Students who wish to extend their knowledge in certain areas beyond the range that the program complementary courses allow can also take a minor. Minors are available in fields such as Arts, Economics, Management, Environmental Engineering, Construction Engineering and Management, and others. These require additional credits to be taken from a specified list of topics relating to the chosen field. Further information on the various minors may be found in section 6.13.10: Minor Programs. Details of how minors can be accommodated within the Civil Engineering program will be made available at the time of preregistration counselling.

6.13.4.3 Academic Programs

Considerable freedom exists for students to influence the nature of the program of study which they follow in the Department of Civil Engineering and Applied Mechanics. A variety of advanced complementary courses is offered in five main groupings: Environmental Engineering, Geotechnical and Geoenvironmental Engineering, Water Resources and Hydraulic Engineering, Structural Engineering, and Transportation Engineering.

Guidance on the sequence in which required core courses should be taken is provided for students in the form of a sample program which covers the entire period of study. The technical complementary courses selected, usually in the last two terms of the program, will depend upon the student's interests. All students must meet with their adviser each term to confirm the courses for which they are registered.

Courses taken in Term 3 or later will depend on a student's interests and ability. Information and advice concerning different possibilities are made available in the Department prior to registration. All programs require the approval of a staff adviser. Programs for students transferring into the Department with advanced standing will be dependent upon the academic credit previously achieved, and such a program will be established only after consultation with a staff adviser.

6.13.4.4 Department of Civil Engineering and Applied Mechanics Faculty

Chair

Van-Thanh-Van Nguyen
Emeritus Professors

Stuart B. Savage; B.Eng.(McG.), M.S.Eng.(Cal. Tech.), Ph.D.(McG.), F.R.S.C.

Professors

Vincent H. Chu; B.S.Eng.(Taiwan), M.A.Sc. (Tor.), Ph.D.(MIT), Eng.
James Nicell; B.A.Sc., M.A.Sc., Ph.D.(Windsor), P.Eng. (William Dawson Scholar)
Suresh C. Shrivastava; B.Sc.(Eng.)(Vikram), M.C.E.(Delhi), Sc.D.(Col.), Eng.

Associate Professors

Susan J. Gaskin; B.Sc.(Qu.), Ph.D.(Cant.), P.Eng.; Graduate Program Director
Ronald Gehr; B.Sc.(Eng.)(Rand), M.A.Sc., Ph.D.(Tor.), P.Eng.
Subhasis Ghoshal; B.C.E.(Jad.), M.S.(Missouri), Ph.D.(Cal. Tech.), P.Eng.; Associate Dean (William Dawson Scholar)
Mohamed Abdel-Meguid; B.Sc.(Cairo, Azhar), M.Sc., Ph.D.(W. Ont.), P.Eng.
Colin Rogers; B.A.Sc., M.A.Sc.(Wat.), Ph.D.(Syd.), P.Eng.
Yixin Shao; B.Sc., M.S.(Tongji), Ph.D.(N'western), P.Eng., F.A.C.I.; Undergraduate Program Director

Assistant Professors

Andrew J. Boyd; B.Sc.Eng.(New Br.), M.A.Sc.(Tor.), Ph.D.(Br. Col.), P.Eng., F.A.C.I.
Naveen Eluru; B.Sc.(Indian IT), M.Sc., Ph.D.(Texas-Austin)
Dominic Frigon; B.Sc.(Agr.Sci.), M.Sc.(McG.), Ph.D.(Env.Sci.)(Ill.)
Marianne Hatzopoulou; B.Sc., M.Sc.(Beirut), Ph.D.(Tor.)
Dimitrios G. Lignos; B.Sc.(Nat. Tech., Athens), M.Sc., Ph.D.(Stan.)
Luis Miranda-Moreno; B.Sc., M.Eng.(Mexico), M.Sc., Ph.D.(Wat.)

Adjunct Professors

Sofia Babarutsi
Richard Edwards
John Hadjinicolaou
Jalal Hawari
Konrad Jones
Angela Keane
Zoubir Lounis
Pierre Lundahl
Patrick Maillard
Charles Manatakos
Thanh Son Nguyen
Adjunct Professors

Paul Rodrigue
Sandro Scola
William Taylor
Marc Villeneuve
Jan Vrana

6.13.4.5 Bachelor of Engineering (B.Eng.) – Civil Engineering (139 credits)

Revision, August 2011. Start of revision.

Program credit weight: 139 credits
Program credit weight for Quebec CEGEP students: 110 credits

The Civil Engineering program is comprehensive in providing the fundamentals in mechanics and engineering associated with the diverse fields of the profession, in offering choices of specialization, and in fully reflecting the advances in science, mathematics, engineering, and computing that have transformed all fields of engineering in recent years. The resulting knowledge and training enables graduates to not only enter the profession thoroughly well prepared, but also to adapt to further change.

The required courses ensure a sound scientific and analytical basis for professional studies through courses in solid mechanics, fluid mechanics, soil mechanics, environmental engineering, water resources management, structural analysis, systems analysis, and mathematics. Fundamental concepts are applied to various fields of practice in both required and complementary courses.

By a suitable choice of complementary courses, students can attain advanced levels of technical knowledge in the specialized areas mentioned above. Alternatively, students may choose to develop their interests in a more general way by combining complementary courses within the Department with several from other departments or faculties.

Required Year 0 (Freshman) Courses

29 credits

Generally, students admitted to Engineering from Quebec CEGEPs are granted transfer credit for these Year 0 (Freshman) courses and enter a 110-credit program.


<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 110</td>
<td>4</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 120</td>
<td>4</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>PHYS 131</td>
<td>4</td>
<td>Mechanics and Waves</td>
</tr>
<tr>
<td>PHYS 142</td>
<td>4</td>
<td>Electromagnetism and Optics</td>
</tr>
</tbody>
</table>

AND 3 credits selected from the approved list of courses in Humanities and Social Sciences, Management Studies, and Law, listed below under Complementary Studies (Group B).

Required Non-Departmental Courses

28 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCOM 206</td>
<td>3</td>
<td>Communication in Engineering</td>
</tr>
<tr>
<td>COMP 208</td>
<td>3</td>
<td>Computers in Engineering</td>
</tr>
<tr>
<td>EPSC 221</td>
<td>3</td>
<td>General Geology</td>
</tr>
<tr>
<td>FACC 100*</td>
<td>1</td>
<td>Introduction to the Engineering Profession</td>
</tr>
<tr>
<td>FACC 400</td>
<td>1</td>
<td>Engineering Professional Practice</td>
</tr>
<tr>
<td>MATH 262</td>
<td>3</td>
<td>Intermediate Calculus</td>
</tr>
<tr>
<td>MATH 263</td>
<td>3</td>
<td>Ordinary Differential Equations for Engineers</td>
</tr>
</tbody>
</table>
MATH 264 (3) Advanced Calculus for Engineers
MECH 261 (2) Measurement Laboratory
MECH 289 (3) Design Graphics
MIME 310 (3) Engineering Economy

* Note: FACC 100 (Introduction to the Engineering Profession) must be taken during the first year of study.

**Required Civil Engineering Courses**

61 credits

CIVE 202 (4) Construction Materials
CIVE 205 (3) Statics
CIVE 206 (3) Dynamics
CIVE 207 (4) Solid Mechanics
CIVE 208 (3) Civil Engineering System Analysis
CIVE 210 (2) Surveying
CIVE 225 (4) Environmental Engineering
CIVE 290 (3) Thermodynamics and Heat Transfer
CIVE 302 (3) Probabilistic Systems
CIVE 311 (4) Geotechnical Mechanics
CIVE 317 (3) Structural Engineering 1
CIVE 318 (3) Structural Engineering 2
CIVE 319 (3) Transportation Engineering
CIVE 320 (4) Numerical Methods
CIVE 323 (3) Hydrology and Water Resources
CIVE 324 (3) Sustainable Project Management
CIVE 327 (4) Fluid Mechanics and Hydraulics
CIVE 418 (4) Design Project
CIVE 432 (1) Technical Paper

**Complementary Courses**

21 credits

**List A - Design Technical Complementaries**

6-15 credits from the following:

CIVE 416 (3) Geotechnical Engineering
CIVE 421 (3) Municipal Systems
CIVE 428 (3) Water Resources and Hydraulic Engineering
CIVE 430 (3) Water Treatment and Pollution Control
CIVE 440 (3) Traffic Engineering and Simulation
CIVE 462 (3) Design of Steel Structures
CIVE 463 (3) Design of Concrete Structures

**List B - General Technical Complementaries**

0-9 credits from the following, or from other suitable undergraduate or 500-level courses:
CIVE 433  (3)  Urban Planning
CIVE 446  (3)  Construction Engineering
CIVE 451  (3)  Geoenvironmental Engineering
CIVE 460  (3)  Matrix Structural Analysis
CIVE 470  (3)  Undergraduate Research Project
CIVE 512  (3)  Advanced Civil Engineering Materials
CIVE 514  (3)  Structural Mechanics
CIVE 527  (3)  Renovation and Preservation: Infrastructure
CIVE 540  (3)  Urban Transportation Planning
CIVE 546  (3)  Selected Topics in Civil Engineering 1
CIVE 550  (3)  Water Resources Management
CIVE 551  (3)  Environmental Transport Processes
CIVE 553  (3)  Stream Pollution and Control
CIVE 555  (3)  Environmental Data Analysis
CIVE 558  (3)  Biomolecular Techniques for Environmental Engineering
CIVE 560  (3)  Transportation Safety and Design
CIVE 572  (3)  Computational Hydraulics
CIVE 573  (3)  Hydraulic Structures
CIVE 574  (3)  Fluid Mechanics of Water Pollution
CIVE 577  (3)  River Engineering
CIVE 584  (3)  Groundwater Engineering
CIVE 587  (3)  Pavement Design

Complementary Studies

6 credits

Group A - Impact of Technology on Society

3 credits from the following:

ANTH 212  (3)  Anthropology of Development
BTEC 502  (3)  Biotechnology Ethics and Society
CIVE 469  (3)  Infrastructure and Society
ECON 225  (3)  Economics of the Environment
ECON 347  (3)  Economics of Climate Change
ENVR 201  (3)  Society, Environment and Sustainability
GEOG 200  (3)  Geographical Perspectives: World Environmental Problems
GEOG 203  (3)  Environmental Systems
GEOG 205  (3)  Global Change: Past, Present and Future
GEOG 302  (3)  Environmental Management 1
MECH 526  (3)  Manufacturing and the Environment
MGPO 440*  (3)  Strategies for Sustainability
MIME 308  (3)  Social Impact of Technology
PHIL 343  (3)  Biomedical Ethics
RELG 270  (3)  Religious Ethics and the Environment
* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

**Group B - Humanities and Social Sciences, Management Studies, and Law**

3 credits at the 200 level or higher from the following departments:

- Anthropology (ANTH)
- Economics (any 200- or 300-level course excluding ECON 217, ECON 227, and ECON 337)
- History (HIST)
- Philosophy (excluding PHIL 210 and PHIL 310)
- Political Science (POLI)
- Psychology (excluding PSYC 204 and PSYC 305, but including PSYC 100)
- Religious Studies (RELG)
- School of Social Work (SWRK)
- Sociology (excluding SOCI 350)

OR one of the following:

- ARCH 528 (3) History of Housing
- BUSA 465* (3) Technological Entrepreneurship
- ENVR 203 (3) Knowledge, Ethics and Environment
- ENVR 400 (3) Environmental Thought
- FACC 220 (3) Law for Architects and Engineers
- FACC 500 (3) Technology Business Plan Design
- FACC 501 (3) Technology Business Plan Project
- INDR 294* (3) Introduction to Labour-Management Relations
- MATH 338 (3) History and Philosophy of Mathematics
- MGCR 222* (3) Introduction to Organizational Behaviour
- MGCR 352* (3) Marketing Management 1
- ORGB 321* (3) Leadership
- ORGB 423* (3) Human Resources Management

* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

**Language Courses**

If you are not proficient in a certain language, no more than 3 credits will be given for one 6-credit course at the 100 level or higher in that language. A maximum of 3 credits of language courses will be counted toward the Complementary Studies requirement.

However, 3-6 credits may be given for language courses at the 200 level or higher that have a sufficient cultural component. These courses must be approved by the Engineering Student Centre (Frank Dawson Adams Building, Room 22).

**Revision, August 2011. End of revision.**
6.13.5.2 About the Department of Electrical and Computer Engineering

The Department of Electrical and Computer Engineering offers undergraduate degree programs in Electrical Engineering, Electrical Engineering (Honours), Computer Engineering, and Software Engineering. All programs provide students with a strong background in mathematics, basic sciences, engineering science, engineering design, and complementary studies, in conformity with the requirements of the Canadian Engineering Accreditation Board (CEAB).

In addition to technical complementary courses, students in all three programs take general complementary courses in humanities and social sciences and/or management studies and law. These courses allow students to develop specific interests in areas such as psychology, economics, management, or political science.

6.13.5.3 Department of Electrical and Computer Engineering Faculty

Chair

David V. Plant

Associate Chair, Operations

Benoit Boulet

Associate Chair, Undergraduate Studies

Jonathan P. Webb

Associate Chair, Graduate Studies

Mark Coates

Emeritus Professors

Eric L. Adler; B.Sc.(Lond.), M.A.Sc.(Tor.), Ph.D.(McG.), F.I.E.E.E., Eng.


Clifford H. Champness; M.Sc.(Lond.), Ph.D.(McG.)

Gerry W. Farnell; B.A.Sc.(Tor.), S.M.(MIT), Ph.D.(McG.), F.I.E.E.E., Eng.

Lorne Mason; B.Eng., Ph.D.(Sask.)


Professors

Peter E. Caines; B.A.(Oxf.), D.I.C., Ph.D.(Lond.), F.R.S.C., F.I.E.E.E., F.C.I.A.R. (James McGill Professor) (Macdonald Professor)

Lawrence Chen; B.Eng.(McG.), M.A.Sc., Ph.D.(Tor.), Associate Dean, Academic Affairs

James Clark; B.A.Sc., Ph.D.(Br. Col.), Associate Dean, Academic

Frank Ferrie; B.Eng., Ph.D.(McG.)


Vincent Hayward; Dip.Ing.(ENSM, Nantes), Doc.Ing.(Orsay), Eng.

Geza Joos; B.Sc.(C'dia), M.Eng., Ph.D.(McG.) (CRC Chair)

Peter Kabal; B.A.Sc., M.A.Sc., Ph.D.(Tor.)

Andrew Kirk; B.Sc.(Brist.), Ph.D.(Lond.), Associate Dean, Research and Graduate Education (William Dawson Scholar)

Harry Leib; B.Sc.(Technion), Ph.D.(Tor.)
Professors
Tho Le-Ngoc; M.Eng.(McG.), Ph.D.(Ott.), F.I.E.E.E.
David A. Lowther; B.Sc.(Lond.), Ph.D.(C.N.A.A.), F.C.A.E., Eng. (*James McGill Professor*)
Boon-Teck Ooi; B.E.(Adel.), S.M.(MIT), Ph.D.(McG.), Eng.
Gordon Roberts; B.A.Sc.(Wat.), M.A.Sc., Ph.D.(Tor.), Eng., F.I.E.E.E. (*James McGill Professor*)
Jonathan Webb; B.A., Ph.D.(Cant.)

Associate Professors
Ramesh Abhari; M.A.Sc.(Tehran), Ph.D.(Tor.)
Tal Arbel; M.Eng., Ph.D.(McG.)
Jan Bajcsy; B.Sc.(Harv.), M.Eng., Ph.D.(Princ.)
Benoit Boulet; B.Sc.(Laval), M.Eng.(McG.), Ph.D.(Tor.) (*William Dawson Scholar*)
Benoit Champagne; B.Eng., M.Eng.(Montr.), Ph.D.(Tor.)
Mark Coates; B.Eng.(Adel.), Ph.D.(Camb.)
Mourad El-Gamal; B.Sc.(Cairo), M.Sc.(Nashville), Ph.D.(McG.) (*William Dawson Scholar*)
Dennis Giannacopoulos; M.Eng., Ph.D.(McG.)
Warren Gross; B.A.Sc.(Wat.), M.A.Sc., Ph.D.(Tor.)
Roni Khazaka; M.Eng., Ph.D.(Car.)
Fabrice Labeau; M.S., Ph.D.(Louvain)
Steve McFee; B.Eng., Ph.D.(McG.)
Hannah Michalska; B.Sc., M.Sc.(Warsaw), Ph.D.(Lond.)
Milica Popovich; B.Sc.(Colo.), M.Sc., Ph.D.(N’western)
Ioannis Psaromiligkos; B.Sc.(Patras), M.Sc., Ph.D.(Buffalo)
Richard Rose; B.Sc., M.S.(Ill.), Ph.D.(GIT)
Ishiang Shih; M.Eng., Ph.D.(McG.)
Zeljko Zilic; B.Eng.(Zagreb), M.Sc., Ph.D.(Tor.)

Assistant Professors
Francois Bouffard; Ph.D.(McG.)
Vamsy Chodavarapu; B.Eng.(India), M.S., Ph.D.(NYU)
Anas Hamoui; M.Eng.(McG.), Ph.D.(Tor.)
Odile Liboiron-Ladouceur; M.Sc., Ph.D.(Col.)
Aditya Mahajan; Ph.D.(Mich.)
Zetian Mi; B.A.Sc.(China), M.Sc.(Iowa), Ph.D.(Mich.)
Sam Musallam; B.Sc., M.Sc., Ph.D.(Tor.)
Michael Rabbat; B.S.(Ill.), M.S.(Texas), Ph.D.(Wisc.)
Martin Rochette; B.A., M.Eng., Ph.D.(Laval)
Thomas Szkopek; B.A.Sc., M.A.Sc.(Tor.), Ph.D.(Calif.-LA)
Mai Vu; M.S., Ph.D.(Stan.)
**Associate Members**

Gregory Dudek; B.Sc.(Qu.), M.Sc., Ph.D.(Tor.)  
Alan C. Evans; M.Sc.(Surrey), Ph.D.(Leeds)  
William R. Funnell; M.Eng., Ph.D.(McG.)  
Henrietta L. Galiana; M.Eng., Ph.D.(McG.)  
Jean Gotman; M.E.(Dart.), Ph.D.(McG.)  
David Juncker; Ph.D.(Neuchatel)  
Robert E. Kearney; M.Eng., Ph.D.(McG.)  
Xue Liu; B.S., M.Eng.(Tsinghua), Ph.D.(Ill.)  
Nathaniel J. Quitoriano; B.S.(Calif.), Ph.D.(MIT)

**Adjunct Professors**

Ray Bartnikas  
Robert DiRaddo  
Danny Grant  
Cedric Guss  
Ricardo Izquierdo  
Cheng K. Jen  
Michael A. Kaplan  
Irene Leszkowicz  
Shie Mannor  
Miguel Marin  
Douglas O'Shaughnessy  
Katarzyna Radecka  
Anthony Rodolakis  
Robert Sabourin  
Joshua D. Schwartz  
Andrews Swidan  
Leszek Szczecinski  
Kenneth D. Wagner  
Lucan Wegrowicz

6.13.5.4 Bachelor of Engineering (B.Eng.) - Electrical Engineering (138 credits)

Revision, August 2011. Start of revision.

Program credit weight: 138-139 credits  
Program credit weight for Quebec CEGEP students: 109-110 credits

This program gives students a broad understanding of the key principles that are responsible for the extraordinary advances in the technology of computers, micro-electronics, automation and robotics, telecommunications, and power systems. These areas are critical to the development of our industries and, more generally, to our economy. A graduate of this program is exposed to all basic elements of electrical engineering and can function in any of our client industries. This breadth is what distinguishes an engineer from, say, a computer scientist or physicist.

In addition to technical complementary courses, students in the Electrical Engineering program take general complementary courses in social sciences, administrative studies, and humanities. These courses allow students to develop specific interests in areas such as psychology, economics, management, or political science.

**Required Year 0 (Freshman) Courses**

29 credits
Generally, students admitted to Engineering from Quebec CEGEPs are granted transfer credit for these Year 0 (Freshman) courses and enter a 109- to 110-credit program.


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<thead>
<tr>
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<td>PHYS 142</td>
<td>4</td>
<td>Electromagnetism and Optics</td>
</tr>
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</table>

AND 3 credits selected from the approved list of courses in Humanities and Social Sciences, Management Studies, and Law, listed below under Complementary Studies (Group B)

* Note: FACC 100 (Introduction to the Engineering Profession) must be taken during the first year of study.

Required Non-Departmental Courses

35 credits

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<td>3</td>
<td>Intermediate Calculus</td>
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<td>MIME 262</td>
<td>3</td>
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<td>MIME 310</td>
<td>3</td>
<td>Engineering Economy</td>
</tr>
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<td>PHYS 271</td>
<td>3</td>
<td>Introduction to Quantum Physics</td>
</tr>
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* Note: FACC 100 (Introduction to the Engineering Profession) must be taken during the first year of study.

Required Electrical Engineering Courses

57 credits

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<td>ECSE 210</td>
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<td>Electric Circuits 2</td>
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<tr>
<td>ECSE 211</td>
<td>3</td>
<td>Design Principles and Methods</td>
</tr>
<tr>
<td>ECSE 221</td>
<td>3</td>
<td>Introduction to Computer Engineering</td>
</tr>
<tr>
<td>ECSE 291</td>
<td>2</td>
<td>Electrical Measurements Laboratory</td>
</tr>
<tr>
<td>ECSE 303</td>
<td>3</td>
<td>Signals and Systems 1</td>
</tr>
<tr>
<td>ECSE 304</td>
<td>3</td>
<td>Signals and Systems 2</td>
</tr>
<tr>
<td>ECSE 305</td>
<td>3</td>
<td>Probability and Random Signals 1</td>
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<td>ECSE 322</td>
<td>3</td>
<td>Computer Engineering</td>
</tr>
<tr>
<td>ECSE 323</td>
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<td>Digital System Design</td>
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</table>
ECSE 330 (3) Introduction to Electronics
ECSE 334 (3) Introduction to Microelectronics
ECSE 351 (3) Electromagnetic Fields
ECSE 352 (3) Electromagnetic Waves
ECSE 361 (3) Power Engineering
ECSE 434 (2) Microelectronics Laboratory
ECSE 443 (3) Introduction to Numerical Methods in Electrical Engineering
ECSE 456 (3) ECSE Design Project 1
ECSE 457 (3) ECSE Design Project 2

Complementary Courses

17-18 credits

Technical Complementaries

9 credits from the following:
ECSE 404 (3) Control Systems
ECSE 405 (3) Antennas
ECSE 411 (3) Communications Systems 1
ECSE 412 (3) Discrete Time Signal Processing
ECSE 413 (3) Communications Systems 2
ECSE 414 (3) Introduction to Telecommunication Networks
ECSE 420 (3) Parallel Computing
ECSE 421 (3) Embedded Systems
ECSE 422 (3) Fault Tolerant Computing
ECSE 423 (3) Fundamentals of Photonics
ECSE 424 (3) Human-Computer Interaction
ECSE 425 (3) Computer Organization and Architecture
ECSE 426 (3) Microprocessor Systems
ECSE 427 (3) Operating Systems
ECSE 430 (3) Photonic Devices and Systems
ECSE 431 (3) Introduction to VLSI CAD
ECSE 432 (3) Physical Basis: Transistor Devices
ECSE 435 (3) Mixed-Signal Test Techniques
ECSE 436 (3) Signal Processing Hardware
ECSE 450 (3) Electromagnetic Compatibility
ECSE 451 (3) EM Transmission and Radiation
ECSE 460* (3) Appareillage électrique (Electrical Power Equipment)
ECSE 462 (3) Electromechanical Energy Conversion
ECSE 464 (3) Power Systems Analysis 1
ECSE 465 (3) Power Electronic Systems
ECSE 467* (3) Comportement des réseaux électriques
ECSE 468* (3) Electricité industrielle (Industrial Power Systems)
ECSE 469* (3) Protection des réseaux électriques
Laboratory Complementaries
2-3 credits from the following:

<table>
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<tr>
<th>Course Code</th>
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<th>Course Title</th>
</tr>
</thead>
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<tr>
<td>ECSE 426</td>
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<td>Microprocessor Systems</td>
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<tr>
<td>ECSE 431</td>
<td>3</td>
<td>Introduction to VLSI CAD</td>
</tr>
<tr>
<td>ECSE 435</td>
<td>3</td>
<td>Mixed-Signal Test Techniques</td>
</tr>
<tr>
<td>ECSE 436</td>
<td>3</td>
<td>Signal Processing Hardware</td>
</tr>
<tr>
<td>ECSE 450</td>
<td>3</td>
<td>Electromagnetic Compatibility</td>
</tr>
<tr>
<td>ECSE 485</td>
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<td>IC Fabrication Laboratory</td>
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<tr>
<td>ECSE 486</td>
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<td>Power Laboratory</td>
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<td>ECSE 487</td>
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<td>Computer Architecture Laboratory</td>
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<tr>
<td>ECSE 488</td>
<td>2</td>
<td>High Frequency Laboratory</td>
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<td>ECSE 489</td>
<td>2</td>
<td>Telecommunication Network Laboratory</td>
</tr>
<tr>
<td>ECSE 490</td>
<td>2</td>
<td>Digital Signal Processing Laboratory</td>
</tr>
<tr>
<td>ECSE 491</td>
<td>2</td>
<td>Communication Systems Laboratory</td>
</tr>
<tr>
<td>ECSE 492</td>
<td>2</td>
<td>Optical Communications Laboratory</td>
</tr>
<tr>
<td>ECSE 493</td>
<td>2</td>
<td>Control and Robotics Laboratory</td>
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</table>

Complementary Studies
6 credits

Group A - Impact of Technology on Society
3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 212</td>
<td>3</td>
<td>Anthropology of Development</td>
</tr>
<tr>
<td>BTEC 502</td>
<td>3</td>
<td>Biotechnology Ethics and Society</td>
</tr>
<tr>
<td>CIVE 469</td>
<td>3</td>
<td>Infrastructure and Society</td>
</tr>
<tr>
<td>ECON 225</td>
<td>3</td>
<td>Economics of the Environment</td>
</tr>
<tr>
<td>ECON 347</td>
<td>3</td>
<td>Economics of Climate Change</td>
</tr>
<tr>
<td>ENV 201</td>
<td>3</td>
<td>Society, Environment and Sustainability</td>
</tr>
<tr>
<td>GEOG 200</td>
<td>3</td>
<td>Geographical Perspectives: World Environmental Problems</td>
</tr>
<tr>
<td>GEOG 203</td>
<td>3</td>
<td>Environmental Systems</td>
</tr>
<tr>
<td>GEOG 205</td>
<td>3</td>
<td>Global Change: Past, Present and Future</td>
</tr>
<tr>
<td>GEOG 302</td>
<td>3</td>
<td>Environmental Management 1</td>
</tr>
<tr>
<td>MECH 526</td>
<td>3</td>
<td>Manufacturing and the Environment</td>
</tr>
<tr>
<td>MGPO 440*</td>
<td>3</td>
<td>Strategies for Sustainability</td>
</tr>
<tr>
<td>MIME 308</td>
<td>3</td>
<td>Social Impact of Technology</td>
</tr>
<tr>
<td>PHIL 343</td>
<td>3</td>
<td>Biomedical Ethics</td>
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<tr>
<td>RELG 270</td>
<td>3</td>
<td>Religious Ethics and the Environment</td>
</tr>
<tr>
<td>SOCI 235</td>
<td>3</td>
<td>Technology and Society</td>
</tr>
<tr>
<td>SOCI 312</td>
<td>3</td>
<td>Sociology of Work and Industry</td>
</tr>
<tr>
<td>URBP 201</td>
<td>3</td>
<td>Planning the 21st Century City</td>
</tr>
</tbody>
</table>

* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.
Group B - Humanities and Social Sciences, Management Studies, and Law

3 credits at the 200 level or higher from the following departments:

Anthropology (ANTH)
Economics (any 200- or 300-level course excluding ECON 217, ECON 227, and ECON 337)
History (HIST)
Philosophy (excluding PHIL 210 and PHIL 310)
Political Science (POLI)
Psychology (excluding PSYC 204 and PSYC 305, but including PSYC 100)
Religious Studies (RELG)
School of Social Work (SWRK)
Sociology (excluding SOCI 350)

OR one of the following:

ARCH 528  (3)  History of Housing
BUSA 465* (3)  Technological Entrepreneurship
ENVR 203 (3)  Knowledge, Ethics and Environment
ENVR 400 (3)  Environmental Thought
FACC 220 (3)  Law for Architects and Engineers
FACC 500 (3)  Technology Business Plan Design
FACC 501 (3)  Technology Business Plan Project
INDR 294* (3)  Introduction to Labour-Management Relations
MATH 338 (3)  History and Philosophy of Mathematics
MGCR 222* (3)  Introduction to Organizational Behaviour
MGCR 352* (3)  Marketing Management I
ORGB 321* (3)  Leadership
ORGB 423* (3)  Human Resources Management

* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

Language Courses

If you are not proficient in a certain language, no more than 3 credits will be given for one 6-credit course at the 100 level or higher in that language. A maximum of 3 credits of language courses will be counted toward the Complementary Studies requirement.

However, 3-6 credits may be given for language courses at the 200 level or higher that have a sufficient cultural component. These courses must be approved by the Engineering Student Centre (Frank Dawson Adams Building, Room 22).

Enhanced Power Concentration

Students following this program must complete 15 credits of technical complementary courses.

The Institute for Electrical Power Engineering was recently established as a province-wide centre for electrical power engineering education. It is funded by industry, mostly Hydro-Québec, and provides a comprehensive program and state-of-the-art laboratory facilities, and a point of contact between industry and universities involved in power engineering.

Note: This program is open to students in the regular Electrical Engineering program only.

Here are some benefits of the concentration:

- A complete and up-to-date final-year program in electrical power engineering, with industry-sponsored and supported courses
- Access to industry-sponsored projects, internships and new employment opportunities

ELIGIBILITY CRITERIA

To be considered in September 2011, the applicant must:
- be registered in the B.Eng. program (regular Electrical Engineering);
- have a cumulative GPA of at least 2.4
- have completed or be registered in ECSE 361 (Power Engineering);
- be able to complete the degree requirements by December 2012;
- agree to follow the curriculum requirements set out below.

SELECTION CRITERIA
The number of students selected, expected to be between five and ten, will be the subject of a specific agreement between the University and the Institute. Selection criteria to the Institute will be based on CGPA and on the curriculum vitae. The selection process for the scholarship may involve an interview with the committee presided by Hydro-Québec. There is a possibility of an internship with Hydro-Québec.

CURRICULUM REQUIREMENTS FOR SELECTED STUDENTS
Generally, unless the University has authorized specific substitutions, students must complete the degree requirements set out in this publication with the following specifications:

Technical Complementaries and Laboratories (15 credits)
All students must take (or have taken) five courses from the following:

Required Courses
9 credits

<table>
<thead>
<tr>
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<tr>
<td>ECSE 462</td>
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</tr>
</tbody>
</table>

Students must also complete ECSE 474 and 475 (Electrical Engineering Design Projects 1 and 2) on a practical project in power engineering, preferably at the Institute or with a company sponsoring the Institute.

Complementary Courses
6 credits from the following:

<table>
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</tr>
</tbody>
</table>

* Courses taught in French
Note: ECSE 460, ECSE 464 (Fall semester), ECSE 465, ECSE 467, ECSE 468, and ECSE 469 are courses sponsored by the Institute and taught at École Polytechnique de Montréal.

Revision, August 2011. End of revision.

6.13.5.5 Bachelor of Engineering (B.Eng.) – Honours Electrical Engineering (138 credits)
Revision, August 2011. Start of revision.
Program credit weight: 138-139 credits

Entry into the Electrical Engineering Honours Program
The Honours program is a limited enrolment program and entry is highly competitive. There is no direct entry to the Honours program in the first year. Students may enter the Honours program in the following ways:
- Students from CEGEP will be admitted, on the basis of their grades, at the start of the third term.
- Students from outside Quebec will be admitted, on the basis of their grades, at the start of the fifth term.

To remain in the Honours program and to be awarded the Honours degree, a student must have completed at least 14 credits in each term since entering Electrical and Computer Engineering, except for the final two terms of their degree, and maintained a CGPA of at least 3.30 since entering Electrical and Computer Engineering. In either of their final two full terms (i.e., Fall and Winter, or Winter and Fall) students may drop below 14 credits, provided the combined load for the two terms is at least 16 credits. For more information, please contact the Departmental office at 514-398-3943.

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<tr>
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</tr>
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</table>

**Required Year 0 (Freshman) Courses (29 credits)**

Note: Students in the Honours Electrical Engineering program complete the Year 0 (Freshman) courses before entering the Honours program, as explained above.

Generally, students admitted to Engineering from Quebec CEGEPs are granted transfer credit for these Year 0 (Freshman) courses and enter a 109- to 100-credit program.


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**Required Non-Departmental Courses**

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<td>3</td>
<td>Introduction to Quantum Physics</td>
</tr>
</tbody>
</table>

* Note: FACC 100 (Introduction to the Engineering Profession) must be taken during the first year of study.

**Required Electrical Engineering Courses**

57 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECSE 200</td>
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<td>Electric Circuits 1</td>
</tr>
<tr>
<td>ECSE 210</td>
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<td>Electric Circuits 2</td>
</tr>
<tr>
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<td>Credits</td>
<td>Course Name</td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td>ECSE 211</td>
<td>3</td>
<td>Design Principles and Methods</td>
</tr>
<tr>
<td>ECSE 221</td>
<td>3</td>
<td>Introduction to Computer Engineering</td>
</tr>
<tr>
<td>ECSE 291</td>
<td>2</td>
<td>Electrical Measurements Laboratory</td>
</tr>
<tr>
<td>ECSE 303</td>
<td>3</td>
<td>Signals and Systems 1</td>
</tr>
<tr>
<td>ECSE 304</td>
<td>3</td>
<td>Signals and Systems 2</td>
</tr>
<tr>
<td>ECSE 305</td>
<td>3</td>
<td>Probability and Random Signals 1</td>
</tr>
<tr>
<td>ECSE 322</td>
<td>3</td>
<td>Computer Engineering</td>
</tr>
<tr>
<td>ECSE 323</td>
<td>5</td>
<td>Digital System Design</td>
</tr>
<tr>
<td>ECSE 330</td>
<td>3</td>
<td>Introduction to Electronics</td>
</tr>
<tr>
<td>ECSE 334</td>
<td>3</td>
<td>Introduction to Microelectronics</td>
</tr>
<tr>
<td>ECSE 351</td>
<td>3</td>
<td>Electromagnetic Fields</td>
</tr>
<tr>
<td>ECSE 352</td>
<td>3</td>
<td>Electromagnetic Waves</td>
</tr>
<tr>
<td>ECSE 361</td>
<td>3</td>
<td>Power Engineering</td>
</tr>
<tr>
<td>ECSE 434</td>
<td>2</td>
<td>Microelectronics Laboratory</td>
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<tr>
<td>ECSE 498</td>
<td>3</td>
<td>Honours Thesis 1</td>
</tr>
<tr>
<td>ECSE 499</td>
<td>3</td>
<td>Honours Thesis 2</td>
</tr>
<tr>
<td>ECSE 543</td>
<td>3</td>
<td>Numerical Methods in Electrical Engineering</td>
</tr>
</tbody>
</table>

**Complementary Courses**

17-18 credits

**Technical Complementaries**

9 credits chose from 500-level ECSE courses OR 6 credits chosen from 500-level ECSE courses and 3 credits chosen from the following list of 400-level courses (no more than one 400-level course can be chosen as a technical complementary):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECSE 425</td>
<td>3</td>
<td>Computer Organization and Architecture</td>
</tr>
<tr>
<td>ECSE 427</td>
<td>3</td>
<td>Operating Systems</td>
</tr>
<tr>
<td>ECSE 451</td>
<td>3</td>
<td>EM Transmission and Radiation</td>
</tr>
</tbody>
</table>

**Laboratory Complementaries**

2-3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECSE 426</td>
<td>3</td>
<td>Microprocessor Systems</td>
</tr>
<tr>
<td>ECSE 431</td>
<td>3</td>
<td>Introduction to VLSI CAD</td>
</tr>
<tr>
<td>ECSE 435</td>
<td>3</td>
<td>Mixed-Signal Test Techniques</td>
</tr>
<tr>
<td>ECSE 436</td>
<td>3</td>
<td>Signal Processing Hardware</td>
</tr>
<tr>
<td>ECSE 450</td>
<td>3</td>
<td>Electromagnetic Compatibility</td>
</tr>
<tr>
<td>ECSE 485</td>
<td>2</td>
<td>IC Fabrication Laboratory</td>
</tr>
<tr>
<td>ECSE 486</td>
<td>2</td>
<td>Power Laboratory</td>
</tr>
<tr>
<td>ECSE 487</td>
<td>2</td>
<td>Computer Architecture Laboratory</td>
</tr>
<tr>
<td>ECSE 488</td>
<td>2</td>
<td>High Frequency Laboratory</td>
</tr>
<tr>
<td>ECSE 489</td>
<td>2</td>
<td>Telecommunication Network Laboratory</td>
</tr>
<tr>
<td>ECSE 490</td>
<td>2</td>
<td>Digital Signal Processing Laboratory</td>
</tr>
<tr>
<td>ECSE 491</td>
<td>2</td>
<td>Communication Systems Laboratory</td>
</tr>
<tr>
<td>ECSE 492</td>
<td>2</td>
<td>Optical Communications Laboratory</td>
</tr>
</tbody>
</table>
Complementary Studies

6 credits

Group A - Impact of Technology on Society

3 credits from the following:

- ANTH 212 (3) Anthropology of Development
- BTEC 502 (3) Biotechnology Ethics and Society
- CIVE 469 (3) Infrastructure and Society
- ECON 225 (3) Economics of the Environment
- ECON 347 (3) Economics of Climate Change
- ENVR 201 (3) Society, Environment and Sustainability
- GEOG 200 (3) Geographical Perspectives: World Environmental Problems
- GEOG 203 (3) Environmental Systems
- GEOG 205 (3) Global Change: Past, Present and Future
- GEOG 302 (3) Environmental Management 1
- MECH 526 (3) Manufacturing and the Environment
- MGPO 440* (3) Strategies for Sustainability
- MIME 308 (3) Social Impact of Technology
- PHIL 343 (3) Biomedical Ethics
- RELG 270 (3) Religious Ethics and the Environment
- SOCI 235 (3) Technology and Society
- SOCI 312 (3) Sociology of Work and Industry
- URBP 201 (3) Planning the 21st Century City

* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

Group B - Humanities and Social Sciences, Management Studies, and Law

3 credits at the 200 level or higher from the following departments:
- Anthropology (ANTH)
- Economics (any 200- or 300-level course excluding ECON 217, ECON 227, and ECON 337)
- History (HIST)
- Philosophy (excluding PHIL 210 and PHIL 310)
- Political Science (POLI)
- Psychology (excluding PSYC 204 and PSYC 305, but including PSYC 100)
- Religious Studies (RELG)
- School of Social Work (SWRK)
- Sociology (excluding SOCI 350)

OR one of the following:

- ARCH 528 (3) History of Housing
- BUSA 465* (3) Technological Entrepreneurship
- ENVR 203 (3) Knowledge, Ethics and Environment
- ENVR 400 (3) Environmental Thought
- FACC 220 (3) Law for Architects and Engineers
FACC 500 (3) Technology Business Plan Design
FACC 501 (3) Technology Business Plan Project
INDR 294* (3) Introduction to Labour-Management Relations
MATH 338 (3) History and Philosophy of Mathematics
MGCR 222* (3) Introduction to Organizational Behaviour
MGCR 352* (3) Marketing Management 1
ORGB 321* (3) Leadership
ORGB 423* (3) Human Resources Management

* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

Language Courses
If you are not proficient in a certain language, no more than 3 credits will be given for one 6-credit course at the 100 level or higher in that language. A maximum of 3 credits of language courses will be counted toward the Complementary Studies requirements.

However, 3-6 credits may be given for language courses at the 200 level or higher that have a sufficient cultural component. These courses must be approved by the Engineering Student Centre (Frank Dawson Adams Building, Room 22).

Revision, August 2011. End of revision.

6.13.5.6 Bachelor of Engineering (B.Eng.) - Computer Engineering (139 credits)

Revision, August 2011. Start of revision.

Program credit weight: 139-143 credits
Program credit weight for CEGEP students: 113-114 credits

The Computer Engineering program provides students with greater depth and breadth of knowledge in the hardware and software aspects of computers. Students are exposed to both theoretical and practical issues of both hardware and software in well-equipped laboratories. Although the program is designed to meet the growing demands by industry for engineers with a strong background in modern computer technology, it also provides the underlying depth for graduate studies in all fields of Computer Engineering.

In addition to technical complementary courses, students in the program take general complementary courses in social sciences, management studies, and humanities. These courses allow students to develop specific interests in areas such as psychology, economics, management, or political science.

Required Year 0 (Freshman) Courses

29 credits

Generally, students admitted to Engineering from Quebec CEGEPs are granted transfer credit for these Year 0 (Freshman) courses and enter a 113- to 114-credit program.


CHEM 110 (4) General Chemistry 1
CHEM 120 (4) General Chemistry 2
MATH 133 (3) Linear Algebra and Geometry
MATH 140 (3) Calculus 1
MATH 141 (4) Calculus 2
PHYS 131 (4) Mechanics and Waves
PHYS 142 (4) Electromagnetism and Optics

AND 3 credits selected from the approved list of courses in Humanities and Social Sciences, Management Administrative Studies, and Law, listed below under Complementary Studies (Group B).

Required Non-Departmental Courses

35 credits

CCOM 206 (3) Communication in Engineering
CIVE 281 (3) Analytical Mechanics
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 202</td>
<td>(3)</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>COMP 250</td>
<td>(3)</td>
<td>Introduction to Computer Science</td>
</tr>
<tr>
<td>COMP 251</td>
<td>(3)</td>
<td>Data Structures and Algorithms</td>
</tr>
<tr>
<td>FACC 100*</td>
<td>(1)</td>
<td>Introduction to the Engineering Profession</td>
</tr>
<tr>
<td>FACC 400</td>
<td>(1)</td>
<td>Engineering Professional Practice</td>
</tr>
<tr>
<td>MATH 262</td>
<td>(3)</td>
<td>Intermediate Calculus</td>
</tr>
<tr>
<td>MATH 263</td>
<td>(3)</td>
<td>Ordinary Differential Equations for Engineers</td>
</tr>
<tr>
<td>MATH 264</td>
<td>(3)</td>
<td>Advanced Calculus for Engineers</td>
</tr>
<tr>
<td>MATH 270</td>
<td>(3)</td>
<td>Applied Linear Algebra</td>
</tr>
<tr>
<td>MATH 363</td>
<td>(3)</td>
<td>Discrete Mathematics</td>
</tr>
<tr>
<td>MIME 310</td>
<td>(3)</td>
<td>Engineering Economy</td>
</tr>
</tbody>
</table>

* Note: FACC 100 (Introduction to the Engineering Profession) must be taken during the first year of study.

**Required Computer Engineering Courses**

58 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECSE 200</td>
<td>(3)</td>
<td>Electric Circuits 1</td>
</tr>
<tr>
<td>ECSE 210</td>
<td>(3)</td>
<td>Electric Circuits 2</td>
</tr>
<tr>
<td>ECSE 211</td>
<td>(3)</td>
<td>Design Principles and Methods</td>
</tr>
<tr>
<td>ECSE 221</td>
<td>(3)</td>
<td>Introduction to Computer Engineering</td>
</tr>
<tr>
<td>ECSE 291</td>
<td>(2)</td>
<td>Electrical Measurements Laboratory</td>
</tr>
<tr>
<td>ECSE 305</td>
<td>(3)</td>
<td>Probability and Random Signals 1</td>
</tr>
<tr>
<td>ECSE 306</td>
<td>(3)</td>
<td>Fundamentals of Signals and Systems</td>
</tr>
<tr>
<td>ECSE 321</td>
<td>(3)</td>
<td>Introduction to Software Engineering</td>
</tr>
<tr>
<td>ECSE 322</td>
<td>(3)</td>
<td>Computer Engineering</td>
</tr>
<tr>
<td>ECSE 323</td>
<td>(5)</td>
<td>Digital System Design</td>
</tr>
<tr>
<td>ECSE 330</td>
<td>(3)</td>
<td>Introduction to Electronics</td>
</tr>
<tr>
<td>ECSE 334</td>
<td>(3)</td>
<td>Introduction to Microelectronics</td>
</tr>
<tr>
<td>ECSE 353</td>
<td>(3)</td>
<td>Electromagnetic Fields and Waves</td>
</tr>
<tr>
<td>ECSE 414</td>
<td>(3)</td>
<td>Introduction to Telecommunication Networks</td>
</tr>
<tr>
<td>ECSE 425</td>
<td>(3)</td>
<td>Computer Organization and Architecture</td>
</tr>
<tr>
<td>ECSE 426</td>
<td>(3)</td>
<td>Microprocessor Systems</td>
</tr>
<tr>
<td>ECSE 427</td>
<td>(3)</td>
<td>Operating Systems</td>
</tr>
<tr>
<td>ECSE 456</td>
<td>(3)</td>
<td>ECSE Design Project 1</td>
</tr>
<tr>
<td>ECSE 457</td>
<td>(3)</td>
<td>ECSE Design Project 2</td>
</tr>
</tbody>
</table>

**Complementary Courses**

17-21 credits

**Basic Science Complementary Courses (for CEGEP students only)**

0-3 credits

Students from CEGEP are required to complete one 3-credit course at the 200 level or higher, chosen from the following science departments, approved by the Undergraduate Programs Office in the Department of Electrical and Computer Engineering:

- Atmospheric and Oceanic Sciences (ATOC)
- Biology (BIOL)
Chemistry (CHEM)
Earth and Planetary Sciences (EPSC)
Earth System Science (ESYS)
Physics (PHYS)

**Technical Complementaries**
9 credits from the following:
500-level ECSE courses are restricted to students with a minimum CGPA of 3.0 and B+ or better in prerequisite courses.

- COMP 424 (3) Artificial Intelligence
- ECSE 404 (3) Control Systems
- ECSE 411 (3) Communications Systems 1
- ECSE 412 (3) Discrete Time Signal Processing
- ECSE 420 (3) Parallel Computing
- ECSE 421 (3) Embedded Systems
- ECSE 422 (3) Fault Tolerant Computing
- ECSE 424 (3) Human-Computer Interaction
- ECSE 428 (3) Software Engineering Practice
- ECSE 429 (3) Software Validation
- ECSE 431 (3) Introduction to VLSI CAD
- ECSE 436 (3) Signal Processing Hardware
- ECSE 443 (3) Introduction to Numerical Methods in Electrical Engineering
- ECSE 450 (3) Electromagnetic Compatibility
- ECSE 530 (3) Logic Synthesis
- ECSE 532 (3) Computer Graphics
- ECSE 537 (3) Advanced Digital Integrated Circuits
- ECSE 548 (3) Introduction to VLSI Systems

**Laboratory Complementaries**
2-3 credits from the following:

- ECSE 434 (2) Microelectronics Laboratory
- ECSE 436 (3) Signal Processing Hardware
- ECSE 487 (2) Computer Architecture Laboratory
- ECSE 489 (2) Telecommunication Network Laboratory
- ECSE 490 (2) Digital Signal Processing Laboratory
- ECSE 491 (2) Communication Systems Laboratory
- ECSE 493 (2) Control and Robotics Laboratory

**Complementary Studies**
6 credits

**Group A - Impact of Technology on Society**
3 credits from the following:

- ANTH 212 (3) Anthropology of Development
- BTEC 502 (3) Biotechnology Ethics and Society
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIVE 469</td>
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<td>Infrastructure and Society</td>
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<tr>
<td>ECON 225</td>
<td>3</td>
<td>Economics of the Environment</td>
</tr>
<tr>
<td>ECON 347</td>
<td>3</td>
<td>Economics of Climate Change</td>
</tr>
<tr>
<td>ENVR 201</td>
<td>3</td>
<td>Society, Environment and Sustainability</td>
</tr>
<tr>
<td>GEOG 200</td>
<td>3</td>
<td>Geographical Perspectives: World Environmental Problems</td>
</tr>
<tr>
<td>GEOG 203</td>
<td>3</td>
<td>Environmental Systems</td>
</tr>
<tr>
<td>GEOG 205</td>
<td>3</td>
<td>Global Change: Past, Present and Future</td>
</tr>
<tr>
<td>GEOG 302</td>
<td>3</td>
<td>Environmental Management 1</td>
</tr>
<tr>
<td>MECH 526</td>
<td>3</td>
<td>Manufacturing and the Environment</td>
</tr>
<tr>
<td>MGPO 440*</td>
<td>3</td>
<td>Strategies for Sustainability</td>
</tr>
<tr>
<td>MIME 308</td>
<td>3</td>
<td>Social Impact of Technology</td>
</tr>
<tr>
<td>PHIL 343</td>
<td>3</td>
<td>Biomedical Ethics</td>
</tr>
<tr>
<td>RELG 270</td>
<td>3</td>
<td>Religious Ethics and the Environment</td>
</tr>
<tr>
<td>SOCI 235</td>
<td>3</td>
<td>Technology and Society</td>
</tr>
<tr>
<td>SOCI 312</td>
<td>3</td>
<td>Sociology of Work and Industry</td>
</tr>
<tr>
<td>URBP 201</td>
<td>3</td>
<td>Planning the 21st Century City</td>
</tr>
</tbody>
</table>

* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

**Group B - Humanities and Social Sciences, Management Studies, and Law**

3 credits at the 200 level or higher from the following departments:

- Anthropology (ANTH)
- Economics (any 200- or 300-level course excluding ECON 217, ECON 227, and ECON 337)
- History (HIST)
- Philosophy (excluding PHIL 210 and PHIL 310)
- Political Science (POLI)
- Psychology (excluding PSYC 204 and PSYC 305, but including PSYC 100)
- Religious Studies (RELG)
- School of Social Work (SWRK)
- Sociology (excluding SOCI 350)

OR one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 528</td>
<td>3</td>
<td>History of Housing</td>
</tr>
<tr>
<td>BUSA 465*</td>
<td>3</td>
<td>Technological Entrepreneurship</td>
</tr>
<tr>
<td>ENVR 203</td>
<td>3</td>
<td>Knowledge, Ethics and Environment</td>
</tr>
<tr>
<td>ENVR 400</td>
<td>3</td>
<td>Environmental Thought</td>
</tr>
<tr>
<td>FACC 220</td>
<td>3</td>
<td>Law for Architects and Engineers</td>
</tr>
<tr>
<td>FACC 500</td>
<td>3</td>
<td>Technology Business Plan Design</td>
</tr>
<tr>
<td>FACC 501</td>
<td>3</td>
<td>Technology Business Plan Project</td>
</tr>
<tr>
<td>INDR 294*</td>
<td>3</td>
<td>Introduction to Labour-Management Relations</td>
</tr>
<tr>
<td>MATH 338</td>
<td>3</td>
<td>History and Philosophy of Mathematics</td>
</tr>
<tr>
<td>MGCR 222*</td>
<td>3</td>
<td>Introduction to Organizational Behaviour</td>
</tr>
<tr>
<td>MGCR 352*</td>
<td>3</td>
<td>Marketing Management 1</td>
</tr>
<tr>
<td>ORGB 321*</td>
<td>3</td>
<td>Leadership</td>
</tr>
<tr>
<td>ORGB 423*</td>
<td>3</td>
<td>Human Resources Management</td>
</tr>
</tbody>
</table>
Language Courses

If you are not proficient in a certain language, no more than 3 credits will be given for one 6-credit course at the 100 level or higher in that language. A maximum of 3 credits of language courses will be counted toward the Complementary Studies requirement.

However, 3-6 credits may be given for language courses at the 200 level or higher that have a sufficient cultural component. These courses must be approved by the Engineering Student Centre (Frank Dawson Adams Building, Room 22).

Revision, August 2011. End of revision.

6.13.5.7 Bachelor of Software Engineering (B.S.E.) - Software Engineering (135 credits)

Revision, August 2011. Start of revision.

Program credit weight: 135-144 credits
Program credit weight for CEGEP students: 112-115 credits

This program offers students the opportunity to focus their studies on the skills needed to design and develop complex software systems. This emerging field of engineering is a major component of the growing Information Technology (IT) sector of the economy, in which the demand for qualified personnel continues to outstrip supply. Graduates of this program will have a solid foundation for careers in the software industry.

In addition to technical complementary courses, students take general complementary courses in social sciences, management studies, and humanities. These courses allow students to develop specific interests in areas such as psychology, economics, management, or political science.

Required Year 0 (Freshman) Courses

29 credits

Generally, students admitted to Engineering from Quebec CEGEPs are granted transfer credit for these Year 0 (Freshman) courses and enter a 112- to 115-credit program.


CHEM 110 (4) General Chemistry 1
CHEM 120 (4) General Chemistry 2
MATH 133 (3) Linear Algebra and Geometry
MATH 140 (3) Calculus 1
MATH 141 (4) Calculus 2
PHYS 131 (4) Mechanics and Waves
PHYS 142 (4) Electromagnetism and Optics

AND 3 credits selected from the approved list of courses in Humanities and Social Sciences, Management Studies, and Law, listed below under Complementary Studies (Group B).

Required Courses

68 credits

COMP 202 (3) Introduction to Computing 1
COMP 206 (3) Introduction to Software Systems
COMP 250 (3) Introduction to Computer Science
COMP 251 (3) Data Structures and Algorithms
COMP 302 (3) Programming Languages and Paradigms
COMP 360 (3) Algorithm Design Techniques
COMP 421 (3) Database Systems
ECSE 211 (3) Design Principles and Methods
ECSE 221 (3) Introduction to Computer Engineering
ECSE 321 (3) Introduction to Software Engineering
ECSE 322 (3) Computer Engineering
ECSE 420 (3) Parallel Computing
ECSE 427 (3) Operating Systems
ECSE 428 (3) Software Engineering Practice
ECSE 429 (3) Software Validation
ECSE 456 (3) ECSE Design Project 1
ECSE 457 (3) ECSE Design Project 2
FACC 100* (1) Introduction to the Engineering Profession
FACC 400 (1) Engineering Professional Practice
MATH 262 (3) Intermediate Calculus
MATH 263 (3) Ordinary Differential Equations for Engineers
MATH 264 (3) Advanced Calculus for Engineers
MATH 270 (3) Applied Linear Algebra
MATH 363 (3) Discrete Mathematics

* Note: FACC 100 (Introduction to the Engineering Profession) must be taken during the first year of study.

Engineering Breadth Required Courses
23 credits
CCOM 206 (3) Communication in Engineering
ECSE 200 (3) Electric Circuits 1
ECSE 210 (3) Electric Circuits 2
ECSE 291 (2) Electrical Measurements Laboratory
ECSE 305 (3) Probability and Random Signals 1
ECSE 306 (3) Fundamentals of Signals and Systems
ECSE 330 (3) Introduction to Electronics
MIME 310 (3) Engineering Economy

Complementary Courses
15-24 credits

Basic Science Complementary Courses (for CEGEP students only)
0-6 credits
Students from CEGEP are required to complete two 3-credit courses at the 200 level or higher, chosen from the following science departments, approved by the Undergraduate Programs Office in the Department of Electrical and Computer Engineering:
Atmospheric and Oceanic Sciences (ATOC)
Biology (BIOL)
Chemistry (CHEM)
Earth and Planetary Sciences (EPSC)
Earth System Science (ESYS)
Physics (PHYS)

Technical Complementaries
9-12 credits
500-level ESCE courses are restricted to students with a minimum CGPA of 3.0 and B+ or better in prerequisite courses.
Not all courses listed are offered in a given year. See the "Courses" section of this publication to know if a course is offered.

List A
6-12 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECSE 323</td>
<td>(5)</td>
<td>Digital System Design</td>
</tr>
<tr>
<td>ECSE 404</td>
<td>(3)</td>
<td>Control Systems</td>
</tr>
<tr>
<td>ECSE 411</td>
<td>(3)</td>
<td>Communications Systems 1</td>
</tr>
<tr>
<td>ECSE 412</td>
<td>(3)</td>
<td>Discrete Time Signal Processing</td>
</tr>
<tr>
<td>ECSE 413</td>
<td>(3)</td>
<td>Communications Systems 2</td>
</tr>
<tr>
<td>ECSE 414*</td>
<td>(3)</td>
<td>Introduction to Telecommunication Networks</td>
</tr>
<tr>
<td>ECSE 421</td>
<td>(3)</td>
<td>Embedded Systems</td>
</tr>
<tr>
<td>ECSE 422</td>
<td>(3)</td>
<td>Fault Tolerant Computing</td>
</tr>
<tr>
<td>ECSE 424</td>
<td>(3)</td>
<td>Human-Computer Interaction</td>
</tr>
<tr>
<td>ECSE 425</td>
<td>(3)</td>
<td>Computer Organization and Architecture</td>
</tr>
<tr>
<td>ECSE 426</td>
<td>(3)</td>
<td>Microprocessor Systems</td>
</tr>
<tr>
<td>ECSE 530</td>
<td>(3)</td>
<td>Logic Synthesis</td>
</tr>
</tbody>
</table>

**List B**

0-4 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 330</td>
<td>(3)</td>
<td>Theoretical Aspects: Computer Science</td>
</tr>
<tr>
<td>COMP 350</td>
<td>(3)</td>
<td>Numerical Computing</td>
</tr>
<tr>
<td>COMP 409</td>
<td>(3)</td>
<td>Concurrent Programming</td>
</tr>
<tr>
<td>COMP 424</td>
<td>(3)</td>
<td>Artificial Intelligence</td>
</tr>
<tr>
<td>COMP 520</td>
<td>(4)</td>
<td>Compiler Design</td>
</tr>
<tr>
<td>COMP 535*</td>
<td>(3)</td>
<td>Computer Networks 1</td>
</tr>
<tr>
<td>COMP 557**</td>
<td>(3)</td>
<td>Fundamentals of Computer Graphics</td>
</tr>
<tr>
<td>COMP 566</td>
<td>(3)</td>
<td>Discrete Optimization 1</td>
</tr>
<tr>
<td>COMP 575</td>
<td>(3)</td>
<td>Fundamentals of Distributed Algorithms</td>
</tr>
<tr>
<td>ECSE 504</td>
<td>(3)</td>
<td>Sampled Data Control</td>
</tr>
<tr>
<td>ECSE 529</td>
<td>(3)</td>
<td>Computer and Biological Vision</td>
</tr>
<tr>
<td>ECSE 532**</td>
<td>(3)</td>
<td>Computer Graphics</td>
</tr>
</tbody>
</table>

* Students choose either COMP 535 or ECSE 414.
** Students choose either COMP 557 or ECSE 532.

**Complementary Studies**

6 credits

**Group A - Impact of Technology on Society**

3 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 212</td>
<td>(3)</td>
<td>Anthropology of Development</td>
</tr>
<tr>
<td>BTEC 502</td>
<td>(3)</td>
<td>Biotechnology Ethics and Society</td>
</tr>
<tr>
<td>CIVE 469</td>
<td>(3)</td>
<td>Infrastructure and Society</td>
</tr>
<tr>
<td>ECON 225</td>
<td>(3)</td>
<td>Economics of the Environment</td>
</tr>
<tr>
<td>ECON 347</td>
<td>(3)</td>
<td>Economics of Climate Change</td>
</tr>
<tr>
<td>ENVR 201</td>
<td>(3)</td>
<td>Society, Environment and Sustainability</td>
</tr>
<tr>
<td>GEOG 200</td>
<td>(3)</td>
<td>Geographical Perspectives: World Environmental Problems</td>
</tr>
</tbody>
</table>
Environmental Systems (3) GEOG 203
Global Change: Past, Present and Future (3) GEOG 205
Environmental Management 1 (3) GECH 302
Manufacturing and the Environment (3) MGPO 440*
Strategies for Sustainability (3) MIME 308
Social Impact of Technology (3) PHIL 343
Biomedical Ethics (3) RELG 270
Religious Ethics and the Environment (3) SOCI 235
Technology and Society (3) SOCI 312
Sociology of Work and Industry (3) URPB 201
Planning the 21st Century City

* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

Group B - Humanities and Social Sciences, Management Studies, and Law

3 courses at the 200 level or higher from the following departments:

Anthropology (ANTH)
Economics (any 200- or 300-level course excluding ECON 217, ECON 227, and ECON 337)
History (HIST)
Philosophy (excluding PHIL 210 and PHIL 310)
Political Science (POLI)
Psychology (excluding PSYC 204 and PSYC 305, but including PSYC 100)
Religious Studies (RELG)
School of Social Work (SWRK)
Sociology (excluding SOCI 350)

OR one of the following:

ARCH 528 (3) History of Housing
BUSA 465* (3) Technological Entrepreneurship
ENVR 203 (3) Knowledge, Ethics and Environment
ENVR 400 (3) Environmental Thought
FACC 220 (3) Law for Architects and Engineers
FACC 500 (3) Technology Business Plan Design
FACC 501 (3) Technology Business Plan Project
INDR 294* (3) Introduction to Labour-Management Relations
MATH 338 (3) History and Philosophy of Mathematics
MGCR 222* (3) Introduction to Organizational Behaviour
MGCR 352* (3) Marketing Management 1
ORGB 321* (3) Leadership
ORGB 423* (3) Human Resources Management

* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

Language Courses

If you are not proficient in a certain language, no more than 3 credits will be given for one 6-credit course at the 100 level or higher in that language. A maximum of 3 credits of language courses will be counted toward the Complementary Studies requirement.

However, 3-6 credits may be given for language courses at the 200 level or higher that have a sufficient cultural component. These courses must be approved by the Engineering Centre (Frank Dawson Adams Building, Room 22).
6.13.6 Department of Mechanical Engineering

6.13.6.1 Location

Macdonald Engineering Building, Room 270
817 Sherbrooke Street West
Montreal, Quebec H3A 2K6

Telephone: 514-398-6296
Fax: 514-398-7365
Website: www.mcgill.ca/mecheng

6.13.6.2 About the Department of Mechanical Engineering

Mechanical engineers are traditionally concerned with the conception, design, implementation, and operation of mechanical systems. Typical fields of work are aerospace, energy, manufacturing, machinery, and transportation. Because of the very broad nature of the discipline, there is usually a high demand for mechanical engineers.

Many mechanical engineers follow other career paths. Graduate studies are useful for the specialists working in research establishments, consulting firms, or in corporate research and development.

To prepare the mechanical engineer for a wide range of career possibilities, there is a heavy emphasis in our curriculum on the fundamental analytical disciplines. This is balanced by a sequence of experimental and design engineering courses, which include practice in design, manufacturing, and experimentation. In these courses, students learn how to apply their analytical groundwork to the solution of practical problems.

Concentrations in Aeronautical Engineering, Mechatronics*, and Design are available for students in either the regular or Honours program who wish to specialize in these areas.

While the program is demanding, there is time for many extracurricular activities. Students are active in such professional societies as CASI (Canadian Aeronautics and Space Institute), SAE (Society of Automotive Engineers), and ASME (American Society of Mechanical Engineers), and in various campus organizations.

Relations between faculty and students are extremely close. Social functions, at which students and professors meet to exchange views and get to know each other better, are organized frequently.

* The Mechatronics Concentration will not be offered until further notice.

6.13.6.3 Department of Mechanical Engineering Faculty

Chair
George Haller

Emeritus Professors
Abdul M. Ahmed; B.Sc.(Dhaka), M.Eng., Ph.D.(McG.), Eng. (Thomas Workman Emeritus Professor of Mechanical Engineering)
Stuart J. Price; B.Sc., Ph.D.(Brist.), P.Eng.

Post-Retirement

Professors
Marco Amabili; M.Eng.(Ancona), Ph.D.(Bologna) (Tier 1 Canada Research Chair)
Professors

Bantwal R. Baliga; B.Tech.(Indian IT, Kanpur), M.Sc.(Case West.), Ph.D.(Minn.)
Eliot Fried; A.B.(Calif., Berk.), M.S., Ph.D.(Calif. Tech.) (Tier 1 Canada Research Chair)
George Haller; M.S.(Budapest Tech.), Ph.D.(Calif. Tech.) (Faculty of Engineering Distinguished Professor)
John H.S. Lee; B.Eng.(McG.), M.Sc.(MIT), Ph.D.(McG.), P.Eng., F.R.S.C.
Luc Mongeau; B.S.M.E., M.S.(École Poly., Montr.), Ph.D.(Penn. St.) (Tier 1 Canada Research Chair)
Meyer Nahon; B.Sc.(Qu.), M.Sc.(Tor.), Ph.D.(McG.), P.Eng., Associate Dean, Graduate and Postdoctoral Studies
Christophe Pierre; B.Eng.(École Centrale, Paris), M.Sc.(Princ.), Ph.D.(Duke) (Tier 1 Canada Research Chair), Dean, Faculty of Engineering

Associate Professors

Luca Cortelezzi; M.Sc., Ph.D.(Calif. Tech.)
David L. Frost; B.A.Sc.(Br. Col.), M.S., Ph.D.(Calif. Tech.), P.Eng., Graduate Program Director
Andrew J. Higgins; B.Sc.(Ill.), M.S., Ph.D.(Wash.)
Pascal Hubert; B.Eng., M.Sc.(École Poly., Montr.), Ph.D.(Br. Col.), P.Eng. (Canada Research Chair), Aerospace Program Coordinator
Tim Lee; M.S.(Port. St.), Ph.D.(Idaho)
Larry B. Lessard; B.Eng.(McG.), M.Sc., Ph.D.(Stan.), P.Eng., Undergraduate Program Director
Laurent Mydlarski; B.A.Sc.(Wat.), Ph.D.(C'nell), Eng.
Siva Nadarajah; B.Sc.(Math), B.Sc.(Aero.Eng.),(Kansas), M.Sc., Ph.D.(Stan.) Associate Dean, Academic Affairs, Director, Graduate Admissions and Scholarships
Damiano Pasini; M.Sc.(Pavia), Ph.D.(Brist.), P.Eng.
Peter Radziszewski; B.A.Sc.(Br. Col.), M.Sc., Ph.D.(Laval), Ing.
Inna Sharf; B.A.Sc., Ph.D.(Tor.), P.Eng.
Vince Thomson; B.Sc.(Windsor), Ph.D.(McM.) (Werner Graupe Professor of Manufacturing Automation)
Evgeny V. Timofeev; M.Sc., Ph.D.(STU, St. Peters.), Eng., A.F.A.I.A.A.
Srikar T. Vengallatore; B.Tech.(BHU), Ph.D.(MIT) (Canada Research Chair) Associate Chair

Assistant Professors

Francois Barthelat; M.Sc.(Roch.), Ph.D.(N'western)
Jeffrey M. Bergthorson; B.Sc.(Man.), M.Sc., Ph.D.(Calif. Tech.), P.Eng.

Faculty Workshop Manager

Jean-Luc Moreau

Adjunct Professors/Course Lecturers

H. Attia
O.F. Bertrand
A. Segall
R. Sumner
6.13.6.4 Bachelor of Engineering (B.Eng.) – Mechanical Engineering (142 credits)

Revision, August 2011. Start of revision.

Program credit weight: 142-148 credits

Program credit weight for CEGEP students: 119 credits

To prepare the mechanical engineer for a wide range of career possibilities, there is a heavy emphasis in our curriculum on the fundamental analytical disciplines. This is balanced by a sequence of experimental and design engineering courses which include practice in design, manufacturing, and experimentation. In these courses, students learn how to apply their analytical groundwork to the solution of practical problems.

Special interests are satisfied by selecting appropriate complementary courses from among those offered with a specific subject concentration, such as management, industrial engineering, computer science, controls and robotics, bio-engineering, aeronautics, combustion, systems engineering, etc.

Required Year 0 (Freshman) Courses

29 credits

Generally, students admitted to Engineering from Quebec CEGEPs are granted transfer credit for these Year 0 (Freshman) courses and enter a 118-credit program.


<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 110</td>
<td>4</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 120</td>
<td>4</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>PHYS 131</td>
<td>4</td>
<td>Mechanics and Waves</td>
</tr>
<tr>
<td>PHYS 142</td>
<td>4</td>
<td>Electromagnetism and Optics</td>
</tr>
</tbody>
</table>

AND 3 credits selected from the approved list of courses in Humanities and Social Sciences, Management Studies, and Law, listed below under Complementary Studies (Group B).

Required Non-Departmental Courses

33 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCOM 206</td>
<td>3</td>
<td>Communication in Engineering</td>
</tr>
<tr>
<td>CIVE 207</td>
<td>4</td>
<td>Solid Mechanics</td>
</tr>
<tr>
<td>COMP 208</td>
<td>3</td>
<td>Computers in Engineering</td>
</tr>
<tr>
<td>ECSE 461</td>
<td>3</td>
<td>Electric Machinery</td>
</tr>
<tr>
<td>FACC 100</td>
<td>1</td>
<td>Introduction to the Engineering Profession</td>
</tr>
<tr>
<td>FACC 400</td>
<td>1</td>
<td>Engineering Professional Practice</td>
</tr>
<tr>
<td>MATH 262</td>
<td>3</td>
<td>Intermediate Calculus</td>
</tr>
<tr>
<td>MATH 263</td>
<td>3</td>
<td>Ordinary Differential Equations for Engineers</td>
</tr>
<tr>
<td>MATH 264</td>
<td>3</td>
<td>Advanced Calculus for Engineers</td>
</tr>
<tr>
<td>MATH 271</td>
<td>3</td>
<td>Linear Algebra and Partial Differential Equations</td>
</tr>
<tr>
<td>MIME 260</td>
<td>3</td>
<td>Materials Science and Engineering</td>
</tr>
<tr>
<td>MIME 310</td>
<td>3</td>
<td>Engineering Economy</td>
</tr>
</tbody>
</table>

* Note: FACC 100 (Introduction to the Engineering Profession) must be taken during the first year of study.

Required Mechanical Engineering Courses

65 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
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</thead>
<tbody>
<tr>
<td>MECH 201</td>
<td>2</td>
<td>Introduction to Mechanical Engineering</td>
</tr>
</tbody>
</table>
MECH 210 (2) Mechanics 1
MECH 220 (4) Mechanics 2
MECH 240 (3) Thermodynamics 1
MECH 262 (3) Statistics and Measurement Laboratory
MECH 289 (3) Design Graphics
MECH 292 (3) Conceptual Design
MECH 309 (3) Numerical Methods in Mechanical Engineering
MECH 314 (3) Dynamics of Mechanisms
MECH 315 (4) Mechanics 3
MECH 321 (3) Mechanics of Deformable Solids
MECH 331 (3) Fluid Mechanics 1
MECH 341 (3) Thermodynamics 2
MECH 346 (3) Heat Transfer
MECH 360 (3) Principles of Manufacturing
MECH 362 (2) Mechanical Laboratory 1
MECH 383 (3) Applied Electronics and Instrumentation
MECH 393 (3) Machine Element Design
MECH 412 (3) Dynamics of Systems
MECH 430 (3) Fluid Mechanics 2
MECH 463D1 (3) Mechanical Engineering Project
MECH 463D2 (3) Mechanical Engineering Project

Complementary Courses
15 credits

6 credits at the 300-level or higher, chosen from Mechanical Engineering courses (subject code MECH). One of these two courses (3 credits) must be from the following list:

CHEE 563* (3) Biofluids and Cardiovascular Mechanics
MECH 513 (3) Control Systems
MECH 529 (3) Discrete Manufacturing Systems
MECH 530 (3) Mechanics of Composite Materials
MECH 532 (3) Aircraft Performance, Stability and Control
MECH 535 (3) Turbomachinery and Propulsion
MECH 536 (3) Aircraft Structures
MECH 541 (3) Kinematic Synthesis
MECH 543 (3) Design with Composite Materials
MECH 544 (3) Processing of Composite Materials
MECH 554 (3) Microprocessors for Mechanical Systems
MECH 557 (3) Mechatronic Design
MECH 563* (3) Biofluids and Cardiovascular Mechanics
MECH 573 (3) Mechanics of Robotic Systems
MECH 577 (3) Optimum Design
MECH 593 (3) Design Theory and Methodology
* Students select either CHEE 563 or MECH 563

3 credits chosen from courses at the 300-level or higher (approved by the Department) in the Faculty of Engineering (including MECH courses) or from courses in the Faculty of Science, including MATH courses.

**Complementary Studies**

6 credits

**Group A - Impact of Technology on Society**

3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 212</td>
<td>Anthropology of Development</td>
<td>3</td>
</tr>
<tr>
<td>BTEC 502</td>
<td>Biotechnology Ethics and Society</td>
<td>3</td>
</tr>
<tr>
<td>CIVE 469</td>
<td>Infrastructure and Society</td>
<td>3</td>
</tr>
<tr>
<td>ECON 225</td>
<td>Economics of the Environment</td>
<td>3</td>
</tr>
<tr>
<td>ECON 347</td>
<td>Economics of Climate Change</td>
<td>3</td>
</tr>
<tr>
<td>ENVR 201</td>
<td>Society, Environment and Sustainability</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 200</td>
<td>Geographical Perspectives: World Environmental Problems</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 203</td>
<td>Environmental Systems</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 205</td>
<td>Global Change: Past, Present and Future</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 302</td>
<td>Environmental Management 1</td>
<td>3</td>
</tr>
<tr>
<td>MECH 526</td>
<td>Manufacturing and the Environment</td>
<td>3</td>
</tr>
<tr>
<td>MGPO 440*</td>
<td>Strategies for Sustainability</td>
<td>3</td>
</tr>
<tr>
<td>MIME 308</td>
<td>Social Impact of Technology</td>
<td>3</td>
</tr>
<tr>
<td>PHIL 343</td>
<td>Biomedical Ethics</td>
<td>3</td>
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<tr>
<td>RELG 270</td>
<td>Religious Ethics and the Environment</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 235</td>
<td>Technology and Society</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 312</td>
<td>Sociology of Work and Industry</td>
<td>3</td>
</tr>
<tr>
<td>URBP 201</td>
<td>Planning the 21st Century City</td>
<td>3</td>
</tr>
</tbody>
</table>

* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

**Group B - Humanities and Social Sciences, Management Studies, and Law**

3 credits at the 200-level or higher from the following departments:

- Anthropology (ANTH)
- Economics (any 200- or 300-level course excluding ECON 217, ECON 227, and ECON 337)
- History (HIST)
- Philosophy (excluding PHIL 210 and PHIL 310)
- Political Science (POLI)
- Psychology (excluding PSYC 204 and PSYC 305, but including PSYC 100)
- Religious Studies (RELG)
- School of Social Work (SWRK)
- Sociology (excluding SOCI 350)

OR one of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 528</td>
<td>History of Housing</td>
<td>3</td>
</tr>
<tr>
<td>BUSA 465*</td>
<td>Technological Entrepreneurship</td>
<td>3</td>
</tr>
<tr>
<td>ENVR 203</td>
<td>Knowledge, Ethics and Environment</td>
<td>3</td>
</tr>
<tr>
<td>ENVR 400</td>
<td>Environmental Thought</td>
<td>3</td>
</tr>
</tbody>
</table>
FACC 220 (3) Law for Architects and Engineers
FACC 500 (3) Technology Business Plan Design
FACC 501 (3) Technology Business Plan Project
INDR 294* (3) Introduction to Labour-Management Relations
MATH 338 (3) History and Philosophy of Mathematics
MGCR 222* (3) Introduction to Organizational Behaviour
MGCR 352* (3) Marketing Management 1
ORGB 321* (3) Leadership
ORGB 423* (3) Human Resources Management

* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

Language Courses
If you are not proficient in a certain language, no more than 3 credits will be given for one 6-credit course at the 100-level or higher in that language. A maximum of 3 credits of language courses will be counted toward the Complementary Studies requirement.

However, 3-6 credits may be given for language courses at the 200-level or higher that have a sufficient cultural component. These courses must be approved by the Engineering Student Centre (Frank Dawson Adams Building, Room 22).

Elective Courses
0-6 credits
Students from Quebec CEGEPs must take 6 credits of courses at the 200-level or higher from the following faculties/schools:

Faculty of Arts
Faculty of Engineering
Faculty of Religious Studies
Faculty of Science

Typical Program of Study
Students entering the program from Quebec CEGEPs follow a different curriculum from those entering from outside the province. Students will be advised by the Department as to which courses they should select from the course lists above.

For a detailed curriculum, please see http://www.mcgill.ca/mecheng/undergrad/curriculum.

For all minors and concentrations, students should complete a Course Authorization Form, available from the Student Affairs Office (Engineering Student Centre) or from the Undergraduate Program Coordinator, indicating their intention to take the minor or concentration.

Revision, August 2011. End of revision.

6.13.6.5 Bachelor of Engineering (B.Eng.) – Honours Mechanical Engineering (142 credits)
Revision, August 2011. Start of revision.

Program credit weight: 142-148 credits
Program credit weight for CEGEP students: 119 credits

To prepare the mechanical engineer for a wide range of career possibilities, there is a heavy emphasis in our curriculum on the fundamental analytical disciplines. This is balanced by a sequence of experimental and design Engineering courses, which include practice in design, manufacturing, and experimentation. In these courses, students learn how to apply their analytical groundwork to the solution of practical problems.

The Honours program is particularly suitable for those with a high aptitude in mathematics and physics and gives a thorough grounding in the basic engineering sciences.

Special interests are satisfied by selecting appropriate complementary courses from among those offered with a specific subject concentration, such as management, industrial engineering, computer science, controls and robotics, bio-engineering, aeronautics, combustion, systems engineering, etc.

Required Year 0 (Freshman) Courses
29 credits
Generally, students admitted to Engineering from Quebec CEGEPs are granted transfer credit for these Year 0 (Freshman) courses and enter a 119-credit program.


<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 110</td>
<td>4</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 120</td>
<td>4</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
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<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>PHYS 131</td>
<td>4</td>
<td>Mechanics and Waves</td>
</tr>
<tr>
<td>PHYS 142</td>
<td>4</td>
<td>Electromagnetism and Optics</td>
</tr>
</tbody>
</table>

AND 3 credits selected from the approved list of courses in Humanities and Social Sciences, Management Studies, and Law, listed below under Complementary Studies (Group B).

**Required Non-Departmental Courses**

27 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCOM 206</td>
<td>3</td>
<td>Communication in Engineering</td>
</tr>
<tr>
<td>CIVE 207</td>
<td>4</td>
<td>Solid Mechanics</td>
</tr>
<tr>
<td>COMP 208</td>
<td>3</td>
<td>Computers in Engineering</td>
</tr>
<tr>
<td>FACC 100*</td>
<td>1</td>
<td>Introduction to the Engineering Profession</td>
</tr>
<tr>
<td>FACC 400</td>
<td>1</td>
<td>Engineering Professional Practice</td>
</tr>
<tr>
<td>MATH 262</td>
<td>3</td>
<td>Intermediate Calculus</td>
</tr>
<tr>
<td>MATH 263</td>
<td>3</td>
<td>Ordinary Differential Equations for Engineers</td>
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<td>MATH 264</td>
<td>3</td>
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</tr>
<tr>
<td>MATH 271</td>
<td>3</td>
<td>Linear Algebra and Partial Differential Equations</td>
</tr>
<tr>
<td>MIME 310</td>
<td>3</td>
<td>Engineering Economy</td>
</tr>
</tbody>
</table>

* Note: FACC 100 (Introduction to the Engineering Profession) must be taken during the first year of study.

**Required Mechanical Engineering Courses**

62 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECH 201</td>
<td>2</td>
<td>Introduction to Mechanical Engineering</td>
</tr>
<tr>
<td>MECH 210</td>
<td>2</td>
<td>Mechanics 1</td>
</tr>
<tr>
<td>MECH 220</td>
<td>4</td>
<td>Mechanics 2</td>
</tr>
<tr>
<td>MECH 240</td>
<td>3</td>
<td>Thermodynamics 1</td>
</tr>
<tr>
<td>MECH 262</td>
<td>3</td>
<td>Statistics and Measurement Laboratory</td>
</tr>
<tr>
<td>MECH 289</td>
<td>3</td>
<td>Design Graphics</td>
</tr>
<tr>
<td>MECH 292</td>
<td>3</td>
<td>Conceptual Design</td>
</tr>
<tr>
<td>MECH 309</td>
<td>3</td>
<td>Numerical Methods in Mechanical Engineering</td>
</tr>
<tr>
<td>MECH 321</td>
<td>3</td>
<td>Mechanics of Deformable Solids</td>
</tr>
<tr>
<td>MECH 331</td>
<td>3</td>
<td>Fluid Mechanics 1</td>
</tr>
<tr>
<td>MECH 341</td>
<td>3</td>
<td>Thermodynamics 2</td>
</tr>
<tr>
<td>MECH 346</td>
<td>3</td>
<td>Heat Transfer</td>
</tr>
<tr>
<td>MECH 360</td>
<td>3</td>
<td>Principles of Manufacturing</td>
</tr>
<tr>
<td>MECH 362</td>
<td>2</td>
<td>Mechanical Laboratory 1</td>
</tr>
<tr>
<td>Course Code</td>
<td>Credits</td>
<td>Course Title</td>
</tr>
<tr>
<td>------------</td>
<td>--------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>MECH 383</td>
<td>3</td>
<td>Applied Electronics and Instrumentation</td>
</tr>
<tr>
<td>MECH 403D1</td>
<td>3</td>
<td>Thesis (Honours)</td>
</tr>
<tr>
<td>MECH 403D2</td>
<td>3</td>
<td>Thesis (Honours)</td>
</tr>
<tr>
<td>MECH 404</td>
<td>3</td>
<td>Honours Thesis 2</td>
</tr>
<tr>
<td>MECH 419</td>
<td>4</td>
<td>Advanced Mechanics of Systems</td>
</tr>
<tr>
<td>MECH 430</td>
<td>3</td>
<td>Fluid Mechanics 2</td>
</tr>
<tr>
<td>MECH 494</td>
<td>3</td>
<td>Honours Design Project</td>
</tr>
</tbody>
</table>

**Complementary Courses**

24 credits

3 credits from the following, chosen with the approval of either the thesis supervisor or the coordinator of the Honours program, when a thesis supervisor has not yet been secured:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 327</td>
<td>3</td>
<td>Matrix Numerical Analysis</td>
</tr>
<tr>
<td>MATH 381</td>
<td>3</td>
<td>Complex Variables and Transforms</td>
</tr>
<tr>
<td>MATH 417</td>
<td>3</td>
<td>Mathematical Programming</td>
</tr>
</tbody>
</table>

6 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MECH 546</td>
<td>3</td>
<td>Finite Element Methods in Solid Mechanics</td>
</tr>
<tr>
<td>MECH 562</td>
<td>3</td>
<td>Advanced Fluid Mechanics</td>
</tr>
<tr>
<td>MECH 578</td>
<td>3</td>
<td>Advanced Thermodynamics</td>
</tr>
</tbody>
</table>

6 credits at the 300 level or higher, chosen from Mechanical Engineering courses (subject code MECH). One of these two courses (3 credits) must be from the following list:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEE 563*</td>
<td>3</td>
<td>Biofluids and Cardiovascular Mechanics</td>
</tr>
<tr>
<td>MECH 513</td>
<td>3</td>
<td>Control Systems</td>
</tr>
<tr>
<td>MECH 529</td>
<td>3</td>
<td>Discrete Manufacturing Systems</td>
</tr>
<tr>
<td>MECH 530</td>
<td>3</td>
<td>Mechanics of Composite Materials</td>
</tr>
<tr>
<td>MECH 532</td>
<td>3</td>
<td>Aircraft Performance, Stability and Control</td>
</tr>
<tr>
<td>MECH 535</td>
<td>3</td>
<td>Turbomachinery and Propulsion</td>
</tr>
<tr>
<td>MECH 536</td>
<td>3</td>
<td>Aircraft Structures</td>
</tr>
<tr>
<td>MECH 541</td>
<td>3</td>
<td>Kinematic Synthesis</td>
</tr>
<tr>
<td>MECH 543</td>
<td>3</td>
<td>Design with Composite Materials</td>
</tr>
<tr>
<td>MECH 544</td>
<td>3</td>
<td>Processing of Composite Materials</td>
</tr>
<tr>
<td>MECH 554</td>
<td>3</td>
<td>Microprocessors for Mechanical Systems</td>
</tr>
<tr>
<td>MECH 557</td>
<td>3</td>
<td>Mechatronic Design</td>
</tr>
<tr>
<td>MECH 563*</td>
<td>3</td>
<td>Biofluids and Cardiovascular Mechanics</td>
</tr>
<tr>
<td>MECH 573</td>
<td>3</td>
<td>Mechanics of Robotic Systems</td>
</tr>
<tr>
<td>MECH 577</td>
<td>3</td>
<td>Optimum Design</td>
</tr>
<tr>
<td>MECH 593</td>
<td>3</td>
<td>Design Theory and Methodology</td>
</tr>
</tbody>
</table>

* Students choose either CHEE 563 or MECH 563.

3 credits chosen from courses at the 300 level or higher (approved by the Department) in the Faculty of Engineering (including MECH courses) or from MIME 260 or from courses at the 300 level or higher in the Faculty of Science, including MATH courses.
Complementary Studies

6 credits

Group A - Impact of Technology on Society

3 credits from the following:

- ANTH 212 (3) Anthropology of Development
- BTEC 502 (3) Biotechnology Ethics and Society
- CIVE 469 (3) Infrastructure and Society
- ECON 225 (3) Economics of the Environment
- ECON 347 (3) Economics of Climate Change
- ENVR 201 (3) Society, Environment and Sustainability
- GEOG 200 (3) Geographical Perspectives: World Environmental Problems
- GEOG 203 (3) Environmental Systems
- GEOG 205 (3) Global Change: Past, Present and Future
- GEOG 302 (3) Environmental Management I
- MECH 526 (3) Manufacturing and the Environment
- MGPO 440* (3) Strategies for Sustainability
- MIME 308 (3) Social Impact of Technology
- PHIL 343 (3) Biomedical Ethics
- RELG 300 (3) Religious Ethics and the Environment
- SOCI 235 (3) Technology and Society
- SOCI 312 (3) Sociology of Work and Industry
- URBP 201 (3) Planning the 21st Century City

* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

Group B: Humanities and Social Sciences, Management Studies, and Law

3 credits at the 200 level or higher from the following departments:

Anthropology (ANTH)

Economics (any 200- or 300-level course excluding ECON 217, ECON 227, and ECON 337)

History (HIST)

Philosophy (excluding PHIL 210 and PHIL 310)

Political Science (POLI)

Psychology (excluding PSYC 204 and PSYC 305, but including PSYC 100)

Religious Studies (RELG)

School of Social Work (SWRK)

Sociology (excluding SOCI 350)

OR one of the following:

- ARCH 528 (3) History of Housing
- BUSA 465* (3) Technological Entrepreneurship
- ENVR 203 (3) Knowledge, Ethics and Environment
- ENVR 400 (3) Environmental Thought
- FACC 220 (3) Law for Architects and Engineers
- FACC 500 (3) Technology Business Plan Design
- FACC 501 (3) Technology Business Plan Project
Introduction to Labour-Management Relations (3) INDR 294*
History and Philosophy of Mathematics (3) MATH 338
Introduction to Organizational Behaviour (3) MGCR 222*
Marketing Management 1 (3) MGCR 352*
Leadership (3) ORGB 321*
Human Resources Management (3) ORGB 423*

* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

Language Courses
If you are not proficient in a certain language, no more than 3 credits will be given for one 6-credit course at the 100 level or higher in that language. A maximum of 3 credits of language courses will be counted toward the Complementary Studies requirement.

However, 3-6 credits may be given for language courses at the 200 level or higher that have a sufficient cultural component. These courses must be approved by the Engineering Student Centre (Frank Dawson Adams Building, Room 22).

Elective Courses
0-6 credits

Students from Quebec CEGEPs must take 6 credits of courses at the 200 level or higher from the following faculties/schools:

Desautels Faculty of Management
Faculty of Agricultural and Environmental Sciences
Faculty of Arts
Faculty of Engineering
Faculty of Religious Studies
Faculty of Science
Schulich School of Music

Typical Program of Study
Students entering the program from CEGEP follow a different curriculum from those entering from out of province. Students will be advised by the Department as to which courses they should select from the course lists above.

For a detailed curriculum, see http://www.mcgill.ca/mecheng/undergrad/curriculum.

For all minors and concentrations, students should complete a Course Authorization Form, available from the Student Affairs Office (Engineering Student Centre) or from the Undergraduate Program Coordinator, indicating their intention to take the minor or concentration.

Revision, August 2011. End of revision.

6.13.6.6 Bachelor of Engineering (B.Eng.) - Mechanical Engineering - Aeronautical Engineering (15 credits)

Students in this concentration take five courses in the area of Aeronautical Engineering. All courses must be passed with a grade of C or better.

Students should discuss their course selection with their adviser and complete a Course Authorization Form, available from the Student Affairs Office (Engineering Student Centre, Frank Dawson Adams Building, Room 22) or from the Undergraduate Program Coordinator, indicating their intention to take the concentration.

Required Courses
6 credits

MECH 532 (3) Aircraft Performance, Stability and Control
MECH 533 (3) Subsonic Aerodynamics

Complementary Courses
9 credits

3-6 credits from the following:

MECH 535 (3) Turbomachinery and Propulsion
Bachelor of Engineering (B.Eng.) - Honours Mechanical Engineering - Aeronautical Engineering (15 credits)

Students in this concentration take five courses in the area of aeronautical engineering. All courses must be passed with a grade of C or better. Students should discuss their course selection with their adviser and complete a Course Authorization Form, available from the Student Affairs Office (Engineering Student Centre, Frank Dawson Adams Building, Room 22) or from the Undergraduate Program Coordinator, indicating their intention to take the concentration.

**Required Courses**

6 credits

- MECH 532 (3) Aircraft Performance, Stability and Control
- MECH 533 (3) Subsonic Aerodynamics

**Complementary Courses**

9 credits

3-6 credits from the following:

- MECH 535 (3) Turbomachinery and Propulsion
- MECH 536 (3) Aircraft Structures

3-6 credits from the following:

- MECH 531 (3) Aeroelasticity
- MECH 537 (3) High-Speed Aerodynamics
- MECH 538 (3) Unsteady Aerodynamics
- MECH 539 (3) Computational Aerodynamics
- MECH 565 (3) Fluid Flow and Heat Transfer Equipment

Bachelor of Engineering (B.Eng.) - Mechanical Engineering - Design (15 credits)

Students in this concentration take five courses in the area of design, including the completion of an interdisciplinary project. Students should complete a Course Authorization Form, available from the Student Affairs Office (Engineering Student Centre, Frank Dawson Adams Building, Room 22) or from the Undergraduate Program Coordinator, indicating their intention to take the concentration.

Total concentration credit weight: 15-16 credits

**Required Courses**

6 credits

- MECH 498 (3) Interdisciplinary Design Project 1
- MECH 499 (3) Interdisciplinary Design Project 2
Complementary Courses
9-10 credits from the following:

- ARCH 515 (3) Sustainable Design
- CHEE 453 (4) Process Design
- MECH 497 (3) Value Engineering
- MECH 526 (3) Manufacturing and the Environment
- MECH 528 (3) Product Design
- MECH 530 (3) Mechanics of Composite Materials
- MECH 541 (3) Kinematic Synthesis
- MECH 543 (3) Design with Composite Materials
- MECH 554 (3) Microprocessors for Mechanical Systems
- MECH 557 (3) Mechatronic Design
- MECH 565 (3) Fluid Flow and Heat Transfer Equipment
- MECH 576 (3) Geometry in Mechanics
- MECH 577 (3) Optimum Design
- MECH 579 (3) Multidisciplinary Design Optimization
- MECH 593 (3) Design Theory and Methodology

6.13.6.9 Bachelor of Engineering (B.Eng.) - Honours Mechanical Engineering - Design (15 credits)

Students in this concentration take five courses in the area of design, including the completion of an interdisciplinary project.

Students should complete a Course Authorization Form, available from the Student Affairs Office (Engineering Student Centre, Frank Dawson Adams Building, Room 22) or from the Undergraduate Program Coordinator, indicating their intention to take the concentration.

Total concentration credit weight: 15-16 credits

Required Courses
6 credits

- MECH 498 (3) Interdisciplinary Design Project 1
- MECH 499 (3) Interdisciplinary Design Project 2

Complementary Courses
9-10 credits from the following:

- ARCH 515 (3) Sustainable Design
- CHEE 453 (4) Process Design
- MECH 497 (3) Value Engineering
- MECH 526 (3) Manufacturing and the Environment
- MECH 528 (3) Product Design
- MECH 530 (3) Mechanics of Composite Materials
- MECH 541 (3) Kinematic Synthesis
- MECH 543 (3) Design with Composite Materials
- MECH 554 (3) Microprocessors for Mechanical Systems
- MECH 557 (3) Mechatronic Design
- MECH 565 (3) Fluid Flow and Heat Transfer Equipment
- MECH 576 (3) Geometry in Mechanics
6.13.6.10 Bachelor of Engineering (B.Eng.) - Mechanical Engineering - Mechatronics (18 credits)

Not offered until further notice.

Students in this concentration take six courses in the area of control, robotics, and/or CAD/CAM.

Students should complete a Course Authorization Form, available from the Student Affairs Office (Engineering Student Centre) or from the Undergraduate Program Coordinator, indicating their intention to take the concentration.

**Required Courses**

12 credits

- MECH 513 (3) Control Systems
- MECH 554 (3) Microprocessors for Mechanical Systems
- MECH 557 (3) Mechatronic Design
- MECH 572 (3) Introduction to Robotics

**Complementary Courses**

6 credits from the following:

- MECH 528 (3) Product Design
- MECH 541 (3) Kinematic Synthesis
- MECH 573 (3) Mechanics of Robotic Systems
- MECH 576 (3) Geometry in Mechanics

6.13.6.11 Bachelor of Engineering (B.Eng.) - Honours Mechanical Engineering - Mechatronics (18 credits)

Not offered until further notice.

Students in this concentration take six courses in the area of control, robotics, and/or CAD/CAM.

Students should complete a Course Authorization Form, available from the Student Affairs Office (Engineering Student Centre) or from the Undergraduate Program Coordinator, indicating their intention to take the concentration.

**Required Courses**

12 credits

- MECH 513 (3) Control Systems
- MECH 554 (3) Microprocessors for Mechanical Systems
- MECH 557 (3) Mechatronic Design
- MECH 572 (3) Introduction to Robotics

**Complementary Courses**

6 credits from the following:

- MECH 528 (3) Product Design
- MECH 541 (3) Kinematic Synthesis
- MECH 573 (3) Mechanics of Robotic Systems
- MECH 576 (3) Geometry in Mechanics
6.13.7 Department of Mining and Materials Engineering

6.13.7.1 Location

**General Office:**
Wong Building, Room 2140
3610 University Street
Montreal, Quebec H3A 2B2

Website: [www.mcgill.ca/minmat](http://www.mcgill.ca/minmat)

**Materials**

Wong Building, Room 2140
3610 University Street
Montreal, Quebec H3A 2B2
Telephone: 514-398-1040
Fax: 514-398-4492
Email: coordinator.minmat@mcgill.ca

**Mining**

Frank Dawson Adams Building, Room 125
3450 University Street
Montreal, Quebec H3A 2A7
Telephone: 514-398-2215
Fax: 514-398-7099
Email: admin.mining@mcgill.ca

6.13.7.2 About the Department of Mining and Materials Engineering

The Department of Mining and Materials Engineering offers programs leading to the Bachelor of Engineering degree in Materials Engineering or Mining Engineering. In addition to regular courses and laboratories, the curriculum includes seminars, colloquia, and student projects reinforced by field trips to industrial operations.

For more information, refer to:

- [section 6.13.7.4.3: Bachelor of Engineering (B.Eng.) – Materials Engineering CO-OP (147 credits)](#)
- [section 6.13.7.5.3: Bachelor of Engineering (B.Eng.) - Mining Engineering CO-OP (149 credits)](#)

6.13.7.2.1 Scholarships

The Department offers renewable Entrance Scholarships every year. A substantial number of other scholarships and bursaries are also awarded by the Department as well as by the Canadian Mineral Industry Education Foundation.

6.13.7.3 Department of Mining and Materials Engineering Faculty

**Chair**
Stephen Yue

**Associate Chair, Student Affairs**
Frank Mucciardi

**Associate Chair, Research**
James A. Finch
### Associate Chair, Graduate Studies

George P. Demopoulos

### Emeritus Professors

John E. Gruzleski; B.Sc., M.Sc.(Qu.), Ph.D.(Tor.), Eng. *(Gerald G. Hatch Emeritus Professor)*

John J. Jonas; B.Eng.(McG.), Ph.D.(Camb.), Eng. *(Henry Birks Emeritus Professor)*


### Post-Retirement


### Professors

George P. Demopoulos; Dipl. Eng.(NTU Athens), M.Sc., Ph.D.(McG.), Eng.

Roussos Dimitrakopoulos; B.Sc., M.Sc.(Alta.), Ph.D.(École Poly., Montr.)

James A. Finch; B.Sc.(Birm.), M.Eng., Ph.D.(McG.), Eng. *(Gerald G. Hatch Professor)*

Raynald Gauvin; B.Eng., Ph.D.(Montr.), Eng.

Roderick I.L. Guthrie; B.Sc., Ph.D.(Lond.), D.I.C., A.R.S.M., Eng. *(William C. Macdonald Professor)*

Faramarz (Ferri) P. Hassani; Ph.D.(Nott.), *(George Boyd Webster Professor)*

Hani S. Mitri; B.Sc.(Cairo), M.Eng., Ph.D.(McM.), Eng.

Stephen Yue; B.Sc., Ph.D.(Leeds) *(James McGill Professor)*

### Associate Professors

Mathieu Brochu; B.Eng.(Laval), Ph.D.(McG.)

Mainul Hasan; B.Eng.(Dhaka), M.Sc.(Dhahran), Ph.D.(McG.)


Showan Nazhat; B.Eng., M.Sc., Ph.D.(Lond.)

Mihriban Pekguleryuz; B.Eng., M.Eng.(Flor.), Ph.D.(McG.)

### Assistant Professors

Marta Cerruti; Ph.D., Laurea in Chemistry (Torino)

Richard Chromik; B.Sc.(Penn. St.), M.Sc., Ph.D.(SUNY, Binghampton)

In-Ho Jung; B.Sc.(South Korea), Ph.D.(École Poly., Montr.)

Nathaniel Quitoriano; B.Sc.(Calif.), Ph.D.(MIT)

Kristian Waters; M.Sc., M.Eng.(Manc.), Ph.D.(Birm.)

### Senior Associate and Adviser

Michael Avedesian; B.Eng.(McG.), Ph.D.(Camb.), Eng.

### Faculty Lecturer

Florence Paray; B.Eng.(CSP), M.Eng., Ph.D.(McG.)

### Course Lecturers

Raad Jassim

John Mossop
Adjunct Professors

Martin Bureau
Robin A.L. Drew
Daryoush Emadi
Elhachmi Essadiqi
Carlton Fuerst
Bryn Harris
Ahmad Hemami
Eric Lifshin
Serge Vézina

Affiliated Member

Angelina Mehta

Co-op Program Liaison Officers

Teresa Barrett (Mining)
Genevieve Snider (Materials)

About Materials Engineering

6.13.7.4 Materials Engineering (Co-op)

The Materials Engineering degree is a cooperative program leading to a B.Eng. and includes formal industrial work periods. It is built on a strong background of mathematics, basic sciences, computer skills and applications, and specific engineering and design courses to provide up-to-date training in materials engineering. Students take core courses covering processing, fabrication, applications, and performance of materials, namely metals, ceramics, polymers, and composites. The program is fully accredited by the Canadian Engineering Accreditation Board (CEAB) and is designed to offer students exceptional training for employment in the field. The core courses are supplemented by complementary courses, which provide a diverse selection of specialties for the graduating engineer. The course structure is reinforced with laboratory exercises. Graduates find employment in a wide range of industries, including the resource and manufacturing sectors. Students in the Co-op program benefit from practical learning experience gained from work-term employment in meaningful engineering jobs, as well as non-tangible learning experiences arising from the responsibilities required to obtain and successfully complete the work terms.

Regarding the Co-op program fees, an amount of $200 will be billed during ten consecutive terms for a total amount of $2,000 before graduation. These fees cover expenses directly related to the operation of the Co-op program. Students must register for each of their industrial training courses and pay the associated fees by the Minerva Course Change (drop/add) deadlines or late fees will apply. Before registering for any work term course, students must contact the Materials Co-op Liaison Officer for approval.

Student Advising

Students entering this program must plan their schedule of studies in consultation with one of the departmental advisers, Prof. Richard Chromik, Prof. Showan Nazhat, or Prof. Kristian Waters.

Bachelor of Engineering (B.Eng.) – Materials Engineering CO-OP (147 credits)

Revision, August 2011. Start of revision.

Program credit weight: 147-148 credits

Program credit weight for CEGEP students: 118-119 credits

In addition to regular courses and laboratories, the B.Eng. Materials Engineering curriculum includes seminars, colloquia, and student projects reinforced by field trips to industrial operations.

Students entering this program must plan their schedule of studies in consultation with the Departmental Adviser.

Required Year 0 (Freshman) Courses

29 credits

Generally, students admitted to Engineering from Quebec CEGEPs are granted transfer credit for these Year 0 (Freshman) courses and enter a 118- to 119-credit program.


CHEM 110 (4) General Chemistry 1
CHEM 120 (4) General Chemistry 2
MATH 133 (3) Linear Algebra and Geometry
MATH 140 (3) Calculus 1
MATH 141 (4) Calculus 2
PHYS 131 (4) Mechanics and Waves
PHYS 142 (4) Electromagnetism and Optics

AND 3 credits selected from the approved list of courses in Humanities and Social Sciences, Management Studies, and Law, listed below under Complementary Studies (Group B)

Note: FACC 100 (Introduction to the Engineering Profession) must be taken during the first year of study.

**Required Non-Departmental Courses**

29 credits

- CCOM 206 (3) Communication in Engineering
- CHEM 233 (3) Topics in Physical Chemistry
- CIVE 205 (3) Statics
- CIVE 207 (4) Solid Mechanics
- COMP 208 (3) Computers in Engineering
- FACC 100* (1) Introduction to the Engineering Profession
- FACC 400 (1) Engineering Professional Practice
- MATH 262 (3) Intermediate Calculus
- MATH 263 (3) Ordinary Differential Equations for Engineers
- MATH 264 (3) Advanced Calculus for Engineers
- MECH 289 (3) Design Graphics

* Note: FACC 100 (Introduction to the Engineering Profession) must be taken during the first year of study.

**Required Materials Engineering Courses**

70-71 credits

- ECSE 461* (3) Electric Machinery
- MIME 209 (3) Mathematical Applications
- MIME 212 (3) Engineering Thermodynamics
- MIME 250 (3) Introduction to Extractive Metallurgy
- MIME 261 (3) Structure of Materials
- MIME 280 (2) Industrial Training 1
- MIME 310 (3) Engineering Economy
- MIME 311 (3) Modelling and Automatic Control
- MIME 317 (3) Analytical and Characterization Techniques
- MIME 337* (2) Electrotechnology
- MIME 341 (3) Introduction to Mineral Processing
- MIME 345 (3) Applications of Polymers
- MIME 350 (3) Extractive Metallurgical Engineering
- MIME 352 (3) Hydrochemical Processing
- MIME 356 (4) Heat, Mass and Fluid Flow
- MIME 360 (3) Phase Transformations: Solids
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIME 362</td>
<td>(3)</td>
<td>Mechanical Properties</td>
</tr>
<tr>
<td>MIME 380</td>
<td>(2)</td>
<td>Industrial Training 2</td>
</tr>
<tr>
<td>MIME 442</td>
<td>(3)</td>
<td>Analysis, Modelling and Optimization in Mineral Processing</td>
</tr>
<tr>
<td>MIME 452</td>
<td>(4)</td>
<td>Process and Materials Design</td>
</tr>
<tr>
<td>MIME 455</td>
<td>(3)</td>
<td>Advanced Process Engineering</td>
</tr>
<tr>
<td>MIME 456</td>
<td>(3)</td>
<td>Steelmaking and Steel Processing</td>
</tr>
<tr>
<td>MIME 465</td>
<td>(3)</td>
<td>Metallic and Ceramic Powders Processing</td>
</tr>
<tr>
<td>MIME 467</td>
<td>(3)</td>
<td>Electronic Properties of Materials</td>
</tr>
<tr>
<td>MIME 480</td>
<td>(2)</td>
<td>Industrial Training 3</td>
</tr>
</tbody>
</table>

* Students choose either ECSE 461 or MIME 337

**Complementary Courses**

18 credits

**Technical Complementaries**

12 credits

9-12 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEE 515*</td>
<td>(3)</td>
<td>Material Surfaces: A Biomimetic Approach</td>
</tr>
<tr>
<td>CIVE 512</td>
<td>(3)</td>
<td>Advanced Civil Engineering Materials</td>
</tr>
<tr>
<td>MECH 530</td>
<td>(3)</td>
<td>Mechanics of Composite Materials</td>
</tr>
<tr>
<td>MIME 410</td>
<td>(3)</td>
<td>Research Project</td>
</tr>
<tr>
<td>MIME 457</td>
<td>(3)</td>
<td>Light Metals Extraction and Processing</td>
</tr>
<tr>
<td>MIME 470</td>
<td>(3)</td>
<td>Engineering Biomaterials</td>
</tr>
<tr>
<td>MIME 512</td>
<td>(3)</td>
<td>Corrosion and Degradation of Materials</td>
</tr>
<tr>
<td>MIME 515*</td>
<td>(3)</td>
<td>Material Surfaces: A Biomimetic Approach</td>
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<tr>
<td>MIME 542</td>
<td>(3)</td>
<td>Transmission Electron Microscopy</td>
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<td>MIME 544</td>
<td>(3)</td>
<td>Analysis: Mineral Processing Systems 1</td>
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<tr>
<td>MIME 545</td>
<td>(3)</td>
<td>Analysis: Mineral Processing Systems 2</td>
</tr>
<tr>
<td>MIME 551</td>
<td>(3)</td>
<td>Electrochemical Processing</td>
</tr>
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<td>MIME 552</td>
<td>(3)</td>
<td>Environmental Controls in Metallurgical Plants</td>
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<tr>
<td>MIME 556</td>
<td>(3)</td>
<td>Sustainable Materials Processing</td>
</tr>
<tr>
<td>MIME 558</td>
<td>(3)</td>
<td>Engineering Nanomaterials</td>
</tr>
<tr>
<td>MIME 559</td>
<td>(3)</td>
<td>Aluminum Physical Metallurgy</td>
</tr>
<tr>
<td>MIME 560</td>
<td>(3)</td>
<td>Joining Processes</td>
</tr>
<tr>
<td>MIME 561</td>
<td>(3)</td>
<td>Advanced Materials Design</td>
</tr>
<tr>
<td>MIME 563</td>
<td>(3)</td>
<td>Hot Deformation of Metals</td>
</tr>
<tr>
<td>MIME 564</td>
<td>(3)</td>
<td>X-Ray Diffraction Analysis of Materials</td>
</tr>
<tr>
<td>MIME 565</td>
<td>(3)</td>
<td>Aerospace Metallic-Materials and Manufacturing Processes</td>
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<tr>
<td>MIME 566</td>
<td>(3)</td>
<td>Texture, Structure &amp; Properties of Polycrystalline Materials</td>
</tr>
<tr>
<td>MIME 568</td>
<td>(3)</td>
<td>Topics in Advanced Materials</td>
</tr>
<tr>
<td>MIME 569</td>
<td>(3)</td>
<td>Electron Beam Analysis of Materials</td>
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<tr>
<td>MIME 571</td>
<td>(3)</td>
<td>Surface Engineering</td>
</tr>
<tr>
<td>MIME 572</td>
<td>(3)</td>
<td>Computational Thermodynamics</td>
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0-3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>BMDE 504</td>
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<td>Biomaterials and Bioperformance</td>
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<tr>
<td>CHEM 574</td>
<td>(3)</td>
<td>Introductory Polymer Chemistry</td>
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<td>CHEM 585</td>
<td>(3)</td>
<td>Colloid Chemistry</td>
</tr>
<tr>
<td>PHYS 558</td>
<td>(3)</td>
<td>Solid State Physics</td>
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</table>

**Complementary Studies**

6 credits

**Group A - Impact of Technology on Society**

3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ANTH 212</td>
<td>(3)</td>
<td>Anthropology of Development</td>
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<tr>
<td>BTEC 502</td>
<td>(3)</td>
<td>Biotechnology Ethics and Society</td>
</tr>
<tr>
<td>CIVE 469</td>
<td>(3)</td>
<td>Infrastructure and Society</td>
</tr>
<tr>
<td>ECON 225</td>
<td>(3)</td>
<td>Economics of the Environment</td>
</tr>
<tr>
<td>ECON 347</td>
<td>(3)</td>
<td>Economics of Climate Change</td>
</tr>
<tr>
<td>ENVR 201</td>
<td>(3)</td>
<td>Society, Environment and Sustainability</td>
</tr>
<tr>
<td>GEOG 200</td>
<td>(3)</td>
<td>Geographical Perspectives: World Environmental Problems</td>
</tr>
<tr>
<td>GEOG 203</td>
<td>(3)</td>
<td>Environmental Systems</td>
</tr>
<tr>
<td>GEOG 205</td>
<td>(3)</td>
<td>Global Change: Past, Present and Future</td>
</tr>
<tr>
<td>GEOG 302</td>
<td>(3)</td>
<td>Environmental Management 1</td>
</tr>
<tr>
<td>MECH 526</td>
<td>(3)</td>
<td>Manufacturing and the Environment</td>
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<tr>
<td>MGPO 440</td>
<td>(3)</td>
<td>Strategies for Sustainability</td>
</tr>
<tr>
<td>MIME 308</td>
<td>(3)</td>
<td>Social Impact of Technology</td>
</tr>
<tr>
<td>PHIL 343</td>
<td>(3)</td>
<td>Biomedical Ethics</td>
</tr>
<tr>
<td>RELG 270</td>
<td>(3)</td>
<td>Religious Ethics and the Environment</td>
</tr>
<tr>
<td>SOCI 235</td>
<td>(3)</td>
<td>Technology and Society</td>
</tr>
<tr>
<td>SOCI 312</td>
<td>(3)</td>
<td>Sociology of Work and Industry</td>
</tr>
<tr>
<td>URBP 201</td>
<td>(3)</td>
<td>Planning the 21st Century City</td>
</tr>
</tbody>
</table>


**Group B - Humanities and Social Sciences, Management Studies, and Law**

3 credits at the 200-level or higher from the following departments:

- Anthropology (ANTH)
- Economics (any 200- or 300-level course excluding ECON 217, ECON 227, and ECON 337)
- History (HIST)
- Philosophy (excluding PHIL 210 and PHIL 310)
- Political Science (POLI)
- Psychology (excluding PSYC 204 and PSYC 305, but including PSYC 100)
- Religious Studies (RELG)
- School of Social Work (SWRK)
- Sociology (excluding SOCI 350)

OR one of the following:
ARCH 528 (3)  History of Housing
BUSA 465* (3)  Technological Entrepreneurship
ENVR 203 (3)  Knowledge, Ethics and Environment
ENVR 400 (3)  Environmental Thought
FACC 220 (3)  Law for Architects and Engineers
FACC 500 (3)  Technology Business Plan Design
FACC 501 (3)  Technology Business Plan Project
INDR 294* (3)  Introduction to Labour-Management Relations
MATH 338 (3)  History and Philosophy of Mathematics
MGCR 222* (3)  Introduction to Organizational Behaviour
MGCR 352* (3)  Marketing Management 1
ORB 321* (3)  Leadership
ORB 423* (3)  Human Resources Management

* Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

Language Courses
If you are not proficient in a certain language, no more than 3 credits will be given for one 6-credit course at the 100 level or higher in that language. A maximum of 3 credits of language courses will be counted toward the Complementary Studies requirement.

However, 3-6 credits may be given for language courses at the 200 level or higher that have a sufficient cultural component. These courses must be approved by the Engineering Student Centre (Frank Dawson Adams Building, Room 22).

Revision, August 2011. End of revision.

6.13.7.5 About Mining Engineering

6.13.7.5.1 Mining Engineering (Co-op)

McGill is proud to be the host of the oldest mining engineering program in Canada, which started in 1871. The program is known for the excellence of its courses as well as the training it provides in mining technology, mineral economics, and mine design. The minerals industry is currently going through an expansion phase that has never been seen before. This is highly beneficial to both our graduate and undergraduate students. Tremendous career opportunities are available in Canada and around the world. There have been rapid technical developments in recent years, presenting a challenge to the creative student with a strong interest in engineering and a taste for innovative solutions.

The Department offers a co-operative program leading to the accredited B.Eng. degree in Mining Engineering. It includes four paid industrial work terms. The Co-op program is offered in collaboration with the mining engineering program at École Polytechnique in Montreal. Students registered at McGill are required to take a series of Mining courses at École Polytechnique in the latter part of the program. These courses are designated by subject code MPMC in the program.

Students must register for each work term (MIME 290, MIME 291, MIME 392, MIME 494) and pay associated fees by the Course Change (add/drop) registration deadline or else late fees will apply. Before registering for any work term course, students must contact the Mining Co-op Liaison Officer for approval.

6.13.7.5.2 Student Advising

Students entering this program must plan their schedule of studies in consultation with one of the departmental advisers: Prof. Ferri Hassani or Mr. John Mossop.

6.13.7.5.3 Bachelor of Engineering (B.Eng.) - Mining Engineering CO-OP (149 credits)

Revision, August 2011. Start of revision.

Program credit weight: 149-151 credits

Program credit weight for CEGEP students: 120-122 credits

In addition to regular courses and laboratories, the curriculum of the B.Eng. Mining Engineering Co-op program includes seminars, colloquia, and student projects reinforced by field trips to industrial operations.

Students entering this program must plan their schedule of studies in consultation with a departmental adviser.

Required Year 0 (Freshman) Courses

29 credits

Generally, students admitted to Engineering from Quebec CEGEPs are granted transfer credit for these Year 0 (Freshman) courses and enter a 120- to 122-credit program.

CHEM 110 (4) General Chemistry 1
CHEM 120 (4) General Chemistry 2
MATH 133 (3) Linear Algebra and Geometry
MATH 140 (3) Calculus 1
MATH 141 (4) Calculus 2
PHYS 131 (4) Mechanics and Waves
PHYS 142 (4) Electromagnetism and Optics

AND 3 credits selected from the approved list of courses in Humanities and Social Sciences, Management Studies, and Law, listed below under Complementary Studies (Group B).

Note: FACC 100 (Introduction to the Engineering Profession) must be taken during the first year of study.

**Required Non-Departmental Courses**

31 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCOM 206</td>
<td>3</td>
<td>Communication in Engineering</td>
</tr>
<tr>
<td>CIVE 205</td>
<td>3</td>
<td>Statics</td>
</tr>
<tr>
<td>CIVE 207</td>
<td>4</td>
<td>Solid Mechanics</td>
</tr>
<tr>
<td>COMP 208</td>
<td>3</td>
<td>Computers in Engineering</td>
</tr>
<tr>
<td>EPSC 221</td>
<td>3</td>
<td>General Geology</td>
</tr>
<tr>
<td>EPSC 225</td>
<td>1</td>
<td>Properties of Minerals</td>
</tr>
<tr>
<td>FACC 100*</td>
<td>1</td>
<td>Introduction to the Engineering Profession</td>
</tr>
<tr>
<td>FACC 400</td>
<td>1</td>
<td>Engineering Professional Practice</td>
</tr>
<tr>
<td>MATH 262</td>
<td>3</td>
<td>Intermediate Calculus</td>
</tr>
<tr>
<td>MATH 263</td>
<td>3</td>
<td>Ordinary Differential Equations for Engineers</td>
</tr>
<tr>
<td>MATH 264</td>
<td>3</td>
<td>Advanced Calculus for Engineers</td>
</tr>
<tr>
<td>MECH 289</td>
<td>3</td>
<td>Design Graphics</td>
</tr>
</tbody>
</table>

* Note: FACC 100 (Introduction to the Engineering Profession) must be taken during the first year of study.

**Required Mining Engineering Courses**

72-73 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECSE 461*</td>
<td>3</td>
<td>Electric Machinery</td>
</tr>
<tr>
<td>MIME 200</td>
<td>3</td>
<td>Introduction to the Minerals Industry</td>
</tr>
<tr>
<td>MIME 203</td>
<td>2</td>
<td>Mine Surveying</td>
</tr>
<tr>
<td>MIME 209</td>
<td>3</td>
<td>Mathematical Applications</td>
</tr>
<tr>
<td>MIME 260</td>
<td>3</td>
<td>Materials Science and Engineering</td>
</tr>
<tr>
<td>MIME 290</td>
<td>2</td>
<td>Industrial Work Period 1</td>
</tr>
<tr>
<td>MIME 291</td>
<td>2</td>
<td>Industrial Work Period 2</td>
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<td>MIME 310</td>
<td>3</td>
<td>Engineering Economy</td>
</tr>
<tr>
<td>MIME 322</td>
<td>3</td>
<td>Rock Fragmentation</td>
</tr>
<tr>
<td>MIME 323</td>
<td>3</td>
<td>Rock and Soil Mass Characterization</td>
</tr>
<tr>
<td>MIME 325</td>
<td>3</td>
<td>Mineral Industry Economics</td>
</tr>
<tr>
<td>MIME 333</td>
<td>3</td>
<td>Materials Handling</td>
</tr>
<tr>
<td>MIME 337*</td>
<td>2</td>
<td>Electrotechnology</td>
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</tbody>
</table>
MIME 340 (3) Applied Fluid Dynamics
MIME 341 (3) Introduction to Mineral Processing
MIME 392 (2) Industrial Work Period 3
MIME 419 (3) Surface Mining
MIME 420 (3) Feasibility Study
MIME 422 (3) Mine Ventilation
MIME 426 (3) Development and Services
MIME 484 (3) Mining Project
MPMC 321** (3) Mécanique des roches et contrôle des terrains
MPMC 326** (3) Recherche opérationnelle I
MPMC 328** (3) Environnement et gestion des rejets miniers
MPMC 329** (2) Géologie minière
MPMC 330** (3) Géotechnique minière
MPMC 421** (3) Exploitation en souterrain

* Students choose either MIME 337 or ECSE 461
** Mining courses taken at École Polytechnique

Complementary Courses
11-12 credits of departmental complementary courses, selected from Stream A or Stream B, as described below.

Stream A
11 credits
MIME 494 (2) Industrial Work Period 4

and 9 credits from the Technical Complementaries list below

OR

Stream B
6 credits
MIME 350 (3) Extractive Metallurgical Engineering
MIME 544 (3) Analysis: Mineral Processing Systems 1

and 6 credits from the Technical Complementaries list below.

Technical Complementaries
Courses can be chosen from the following or from any other approved technical courses in Engineering, Management, or Science.

Note: Not all courses are given annually; see the "Courses" section of this publication to know if a course is offered.

MIME 320 (3) Extraction of Energy Resources
MIME 442 (3) Analysis, Modelling and Optimization in Mineral Processing
MIME 513 (3) Mine Planning Optimization Under Uncertainty
MIME 520 (3) Stability of Rock Slopes
MIME 521 (3) Stability of Underground Openings
MIME 525 (3) Stochastic Orebody Modelling
MIME 526 (3) Mineral Economics
MIME 527 (3) Selected Topics in Mineral Resource Engineering
MIME 528 (3) Mining Automation
Complementary Studies

Group A - Impact of Technology on Society

3 credits from the following:

- ANTH 212 (3) Anthropology of Development
- BTEC 502 (3) Biotechnology Ethics and Society
- CIVE 469 (3) Infrastructure and Society
- ECON 225 (3) Economics of the Environment
- ECON 347 (3) Economics of Climate Change
- ENVR 201 (3) Society, Environment and Sustainability
- GEOG 200 (3) Geographical Perspectives: World Environmental Problems
- GEOG 203 (3) Environmental Systems
- GEOG 205 (3) Global Change: Past, Present and Future
- GEOG 302 (3) Environmental Management 1
- MECH 526 (3) Manufacturing and the Environment
- MGPO 440* (3) Strategies for Sustainability
- MIME 308 (3) Social Impact of Technology
- PHIL 343 (3) Biomedical Ethics
- RELG 270 (3) Religious Ethics and the Environment
- SOCI 235 (3) Technology and Society
- SOCI 312 (3) Sociology of Work and Industry
- URBP 201 (3) Planning the 21st Century City

* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

Group B - Humanities and Social Sciences, Management Studies, and Law

3 credits at the 200-level or higher from the following departments:

Anthropology (ANTH)
Economics (any 200- or 300-level course excluding ECON 217, ECON 227, and ECON 337)
History (HIST)
Philosophy (excluding PHIL 210 and PHIL 310)
Political Science (POLI)
Psychology (excluding PSYC 204 and PSYC 305, but including PSYC 100)
Religious Studies (RELG)
School of Social Work (SWRK)
Sociology (excluding SOCI 350)

OR one of the following:
- ARCH 528 (3) History of Housing
BUSA 465* (3) Technological Entrepreneurship
ENVR 203 (3) Knowledge, Ethics and Environment
ENVR 400 (3) Environmental Thought
FACC 220 (3) Law for Architects and Engineers
FACC 500 (3) Technology Business Plan Design
FACC 501 (3) Technology Business Plan Project
INDR 294* (3) Introduction to Labour-Management Relations
MATH 338 (3) History and Philosophy of Mathematics
MGCR 222* (3) Introduction to Organizational Behaviour
MGCR 352* (3) Marketing Management 1
ORGB 321* (3) Leadership
ORGB 423* (3) Human Resources Management

* Note: Management courses have limited enrolment and registration dates. See Important Dates at http://www.mcgill.ca/importantdates.

Language Courses
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Revision, August 2011. End of revision.

6.13.8 School of Urban Planning

6.13.8.1 Location

Macdonald-Harrington Building, Room 400
815 Sherbrooke Street West
Montreal, Quebec H3A 2K6

Telephone: 514-398-4075
Fax: 514-398-8376
Email: admissions.planning@mcgill.ca
Website: www.mcgill.ca/urbanplanning

6.13.8.2 About the School of Urban Planning

Modern urban planning developed into a profession in the early decades of the 20th century, largely as a response to the appalling sanitary, social, and economic conditions of rapidly developing industrial cities. Initially, the disciplines of architecture, landscape architecture, civil engineering, and public health provided the nucleus of concerned professionals; beautification schemes and infrastructure works marked the early stages of public intervention in the 19th century. Architects, engineers, and public health specialists were joined by economists, sociologists, lawyers, and geographers as the complexities of the city's problems came to be more fully understood and public pressure mounted for their solution. Contemporary urban and regional planning techniques for survey, analysis, design, and implementation developed from an interdisciplinary synthesis of these various fields, as did the practice of urban design.

Today, urban planning can be described as the collective management of urban development. It is concerned with the welfare of communities, control of the use of land, design of the built environment, including transportation and communication networks, and protection and enhancement of the natural environment. It is at once a technical and a political process that brings together actors from the public, private, and community spheres. Planners participate in that process in a variety of ways, as designers and analysts, advocates and mediators, facilitating the search for equitable and efficient solutions to problems of urban growth and development.

McGill University was the first institution in Canada to offer a full-time planning program. An interdisciplinary program was established in 1947, in which students combined a Master's degree in Urban Planning with one in a related field. An autonomous program was established in 1972. It became the School of Urban Planning in 1976, a unit within the Faculty of Engineering. It has strong links with the School of Architecture, which is housed in the same building.

Students come to the School from diverse backgrounds, the physical sciences, the traditional professions, such as architecture and engineering, and the social sciences. Alumni of the School work as planners and designers at various levels of government, in non-profit organizations, and with private consulting firms. Their expertise ranges from historic preservation to transportation planning, from housing development to computer imaging. They devote their efforts in increasing numbers to environmental planning and sustainable development.
The School has a rich track record of contribution to the community and to the profession. It devotes its energy to the study of urban problems and the formulation of policies in developing regions as well as in Montreal and other Canadian cities. Faculty and students collaborate actively with members of other McGill departments, notably Architecture, Geography, Civil Engineering, and Law, and with colleagues at other institutions in Canada and abroad.

The objective of the School is to produce qualified professional urban planners for the public and the private sectors. Training is provided at the postgraduate level; the degree offered is the Master of Urban Planning (M.U.P.). Two formal specializations are available: in Urban Design and in Transportation Planning. M.U.P. students in the core program may also opt to spend a semester in Barbados as part of the Barbados Field Study Semester, which focuses on Global Environmental Issues. Details concerning each of these concentrations can be found at www.mcgill.ca/urbandesign, www.tram.mcgill.ca, and www.mcgill.ca/bfss respectively.

Upon completion of the two-year program of studies, graduates are expected to have acquired basic planning skills, a broad understanding of urban issues, and specialized knowledge in a field of their own choice.

The program of study offered by the School is fully recognized by the Ordre des Urbanistes du Québec (O.U.Q.) and the Canadian Institute of Planners (C.I.P.). Graduates may become full members of the O.U.Q. and other provincial planning associations by completing their respective internship and examination requirements. Similar requirements must be met for admission to the American Institute of Certified Planners (A.I.C.P.) and other such organizations.

For details of the M.U.P. admission requirements and curriculum, consult the Graduate and Postdoctoral Studies Programs, Courses and University Regulations publication, available at www.mcgill.ca/study.

6.13.8.3 Undergraduate Courses in Urban Planning

The following courses taught by faculty in the School of Urban Planning are open to undergraduate students:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ARCH 520</td>
<td>3</td>
<td>Montreal: Urban Morphology</td>
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<tr>
<td>ARCH 521</td>
<td>3</td>
<td>Structure of Cities</td>
</tr>
<tr>
<td>ARCH 550</td>
<td>3</td>
<td>Urban Planning and Development</td>
</tr>
<tr>
<td>URBP 201</td>
<td>3</td>
<td>Planning the 21st Century City</td>
</tr>
<tr>
<td>URBP 501</td>
<td>2</td>
<td>Principles and Practice 1</td>
</tr>
<tr>
<td>URBP 504</td>
<td>3</td>
<td>Planning for Active Transportation</td>
</tr>
<tr>
<td>URBP 505</td>
<td>3</td>
<td>Geographic Information Systems</td>
</tr>
<tr>
<td>URBP 506</td>
<td>3</td>
<td>Environmental Policy and Planning</td>
</tr>
<tr>
<td>URBP 507</td>
<td>3</td>
<td>Planning and Infrastructure</td>
</tr>
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<td>URBP 519</td>
<td>6</td>
<td>Sustainable Development Plans</td>
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<tr>
<td>URBP 520</td>
<td>3</td>
<td>Globalization: Planning and Change</td>
</tr>
<tr>
<td>URBP 530</td>
<td>3</td>
<td>Urban Environmental Planning</td>
</tr>
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<td>URBP 536</td>
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<td>Transportation Seminar 1</td>
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<td>URBP 537</td>
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<td>Transportation Seminar 2</td>
</tr>
<tr>
<td>URBP 538</td>
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<td>Transportation Seminar 3</td>
</tr>
</tbody>
</table>

6.13.8.4 School of Urban Planning Faculty

**Director**
Raphaël Fischler

**Emerita Professor**
Jane Matthews-Glenn; B.A., LL.B.(Qu.), D. en droit(Strasbourg)

**Associate Professors**
Madhav G. Badami; B.Tech., M.S.(IIT, Madr.), M.E.Des.(Calg.), Ph.D.(Br. Col.) (joint appt. with McGill School of Environment)
Lisa Bornstein; B.Sc.(Calif., Berk.), M.R.P.(C’nell), Ph.D.(Calif., Berk.)
David F. Brown; B.A.(Bishop’s), M.U.P.(McG.), Ph.D.(Sheff.)
Raphaël Fischler; B.Eng.(V. Tech. Eindhoven), M.S. Arch.S., M.C.P.(MIT), Ph.D.(Calif., Berk.)
Assistant Professors
Ahmed Elgeneidy; B.Sc., M.Sc.(Alexandria), Ph.D.(Port. St.)
Nik Luka; B.A.(Ryerson), M.Arch.(Laval), Ph.D.(Tor.) (joint appt. with Architecture)

Instructors
Heather Braiden; B.E.S.(Wat.), M.L.Arch.(Tor.)
Marc-André Lechasseur; LL.B.(Sher.), LL.M.(Montr.)
Alain Trudeau; B.Sc.(UQAM), M.U.P.(McG.)

Adjunct Professors
Cameron Charlebois; B.Sc.(Arch.), B.Arch., M.B.A.(McG.)
David Farley; B.Arch.(McG.), M.Arch., M.C.P.(Harv.)
Mario Polese; B.A.(CUNY), M.A., Ph.D.(Penn.)
Ray Tomalty; B.A., M.P.A..(Qu.), Ph.D.(Wat.)

Guest Lecturers
Paul LeCavalier
Brenda Lee
Denis Lévesque
Pierre Morissette
Richard Shearmur
Larry Sherman
Martin Wexler
Joshua Wolfe

6.13.9 Faculty of Engineering Related Programs

6.13.9.1 Bioresource Engineering
The Faculty of Engineering cooperates with the Faculty of Agricultural and Environmental Sciences in providing courses of instruction for a curriculum in agricultural and biosystems engineering to meet requirements for a professional degree awarded in the Faculty of Agricultural and Environmental Sciences. For details, refer to the B.Eng.(Bioresource) program requirements in the Faculty of Agricultural and Environmental Sciences section of this publication.

Some of the courses offered by the Department of Bioresource Engineering (subject code BREE) may be of interest to students in the Faculty of Engineering. The Department of Bioresource Engineering is located in the Faculty of Agricultural and Environmental Sciences on the Macdonald campus:

Department of Bioresource Engineering
Macdonald-Stewart Building, Room MS1-027
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, Quebec H9X 3V9
Telephone: 514-398-7773
Fax: 514-398-8387
Website: www.mcgill.ca/bioeng

6.13.9.2 Department of Biomedical Engineering
Lyman Duff Medical Sciences Building
3775 University Street
Montreal, Quebec H3A 2B4
Telephone: 514-398-6736
Website: www.bmed.mcgill.ca
Some of the courses offered by the Department of Biomedical Engineering (subject code BMDE) may be of interest to Engineering students, and may be approved as complementary courses. The Faculty of Engineering also offers a Minor in Biomedical Engineering; for more information, see section 6.13.10.2.1: Bachelor of Engineering (B.Eng.) - Minor Biomedical Engineering (21 credits).

6.13.10 Minor Programs

This section includes general information concerning minors that are designed for students in the Faculty of Engineering.

Minors are coherent sequences of courses taken in addition to the courses required for the B.Eng., B.S.E., or B.Sc.(Arch.) degree. Minors normally consist of 18-24 credits, allowing 9-12 credits of overlap with the degree program. The real credit cost to the student is typically 9-15 credits, representing one term beyond the B.Eng., B.S.E., or B.Sc.(Arch.) degree program. All courses in a minor must be passed with a grade of C or better.

Engineering students choose from a considerable variety of complementary courses under the categories of technical and complementary studies. Students should refer to their department for information concerning selection of complementary courses, and should see their department adviser. Departments also publish information regarding the choice of courses in this publication and in separate documents.

Note: Students are also permitted to register for minor concentrations offered by departments in the Faculty of Arts. Students must obtain approval from both the department in the Faculty of Arts and from the Engineering Student Centre Student Affairs Office (Frank Dawson Adams, Room 22), before registering in one of these minors.

Minor Programs:
- section 6.13.10.1: Arts Minor
- section 6.13.10.2: Biomedical Engineering Minor
- section 6.13.10.3: Biotechnology Minor
- section 6.13.10.4: Chemistry Minor
- section 6.13.10.5: Computer Science Courses and Minor Program
- section 6.13.10.6: Construction Engineering and Management Minor
- section 6.13.10.7: Economics Minor
- section 6.13.10.8: Environmental Engineering Minor
- section 6.13.10.9: Minor in Environment
- section 6.13.10.10: Minor Programs in Finance, Management, Marketing, and Operations Management
- section 6.13.10.11: Materials Engineering Minor
- section 6.13.10.12: Mathematics Minor
- section 6.13.10.13: Mining Engineering Minor
- section 6.13.10.14: Physics Minor
- section 6.13.10.15: Software Engineering Minor
- section 6.13.10.16: Technological Entrepreneurship Minor

6.13.10.1 Arts Minor

The Arts Minor is open to B.Sc.(Arch.), B.Eng., and B.S.E. students. In this Minor, students choose courses from two areas of concentration in the Faculty of Arts, approved by a Faculty Adviser in the Student Affairs Office, Engineering Student Centre, or by the Senior Faculty Adviser in the Faculty of Arts. B.Eng. and B.S.E. students may count some of their Complementary Studies courses toward this Minor.

Minor Adviser: Faculty Student Adviser in the Engineering Student Centre (Frank Dawson Adams, Room 22) OR Donald Sedgwick (Senior Faculty Adviser, Faculty of Arts)

6.13.10.1.1 Bachelor of Engineering (B.Eng.) - Minor Arts (24 credits)

Minor Adviser: Faculty Student Adviser in the Engineering Student Centre (Frank Dawson Adams Building, Room 22) OR Donald Sedgwick (Senior Faculty Adviser, Faculty of Arts)

B.Sc.(Arch.), B.Eng., and B.S.E. students may obtain the Arts Minor as part of their B.Eng., B.S.E., or B.Sc.(Arch.) degree by completing 24 credits, as described below.

Students must select courses for this Minor in consultation with one of the Advisers indicated above.

All courses in the Minor must be passed with a grade of C or better.

Requirements

24 credits as follows:

a) At least two areas of concentration in the Faculty of Arts must be chosen, with a minimum of 6 credits in any one area.

b) At least 12 credits must be at the 300 level or higher.
In general, B.Eng. and B.S.E. students may use courses from the Complementary Studies lists (Group A and Group B) in their program that are offered by the Faculty of Arts to satisfy some of these requirements. No more than 9 credits of these courses can be credited toward the Arts Minor.

6.13.10.2 Biomedical Engineering Minor

Biomedical engineering can be defined as the application of engineering principles to medicine and the life sciences. Students in the Biomedical Engineering Minor take courses in life sciences (anatomy, biology, chemistry, and physiology) and choose courses from area(s) within the field of biomedicine (artificial cells and organs; bioinformatics, genomics, and proteomics; biomaterials, biosensors, and nanotechnology; biomechanics and prosthetics; medical physics and imaging; and neural systems and bio signal processing).

Minor Adviser: Prof. R. Leask (Wong Building, Room 4120) or Prof. R. Mongrain (Macdonald Engineering Building, Room 369)

6.13.10.21 Bachelor of Engineering (B.Eng.) - Minor Biomedical Engineering (21 credits)

Minor Advisers: Prof. R. Leask (Wong Building, Room 4120) or Prof. R. Mongrain (Macdonald Engineering Building, Room 369)

Note: Open to all students in the Faculty of Engineering (including B.S.E. students).

Minor program credit weight: 21-25 credits

The Biomedical Engineering Minor allows access to courses in basic life sciences and is intended to expose students to the interdisciplinary tools used in biomedicine.

To complete this Minor, students must obtain a grade of C or better in all approved courses and satisfy the requirements of both the major program and the Minor.

Students considering this Minor should contact the Minor Advisers listed above.

Complementary Introductory Courses in Life Sciences

3-7 credits

One or two courses from the following list (equivalents can be approved):

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 212</td>
<td>(3)</td>
<td>Molecular Mechanisms of Cell Function</td>
</tr>
<tr>
<td>BIOC 212</td>
<td>(3)</td>
<td>Molecular Mechanisms of Cell Function</td>
</tr>
<tr>
<td>BIOL 200</td>
<td>(3)</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 201</td>
<td>(3)</td>
<td>Cell Biology and Metabolism</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>(4)</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>PHGY 201</td>
<td>(3)</td>
<td>Human Physiology: Control Systems</td>
</tr>
<tr>
<td>PHGY 202</td>
<td>(3)</td>
<td>Human Physiology: Body Functions</td>
</tr>
<tr>
<td>PHGY 209</td>
<td>(3)</td>
<td>Mammalian Physiology 1</td>
</tr>
<tr>
<td>PHGY 210</td>
<td>(3)</td>
<td>Mammalian Physiology 2</td>
</tr>
</tbody>
</table>

Specialization Courses

12-18 credits from the following:

Students must select 6 credits from courses outside their department and at least one BMDE course. These BMDE courses are best taken near the end of the program, when prerequisites are satisfied.

Artificial Cells and Organs

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMDE 505</td>
<td>(3)</td>
<td>Cell and Tissue Engineering</td>
</tr>
<tr>
<td>CHEE 562</td>
<td>(3)</td>
<td>Engineering Principles in Physiological Systems</td>
</tr>
<tr>
<td>PHGY 311</td>
<td>(3)</td>
<td>Channels, Synapses &amp; Hormones</td>
</tr>
<tr>
<td>PHGY 312</td>
<td>(3)</td>
<td>Respiratory, Renal, &amp; Cardiovascular Physiology</td>
</tr>
<tr>
<td>PHGY 313</td>
<td>(3)</td>
<td>Blood, Gastrointestinal, &amp; Immune Systems Physiology</td>
</tr>
<tr>
<td>PHGY 517</td>
<td>(3)</td>
<td>Artificial Internal Organs</td>
</tr>
<tr>
<td>PHGY 518</td>
<td>(3)</td>
<td>Artificial Cells</td>
</tr>
</tbody>
</table>

Bioinformatics, Genomics and Proteomics
ANAT 365* (3) Cellular Trafficking
ANAT 458 (3) Membranes and Cellular Signaling
BIOC 311 (3) Metabolic Biochemistry
BIOC 312 (3) Biochemistry of Macromolecules
BIOC 458* (3) Membranes and Cellular Signaling
BMDE 506 (3) Molecular Biology Techniques
COMP 302 (3) Programming Languages and Paradigms
COMP 360 (3) Algorithm Design Techniques
COMP 421 (3) Database Systems
COMP 424 (3) Artificial Intelligence
COMP 462 (3) Computational Biology Methods
COMP 526 (3) Probabilistic Reasoning and AI

* Students choose either ANAT 365 or BIOC 458

Biomaterials, Biosensors, and Nanotechnology

BMDE 504 (3) Biomaterials and Bioperformance
BMDE 505 (3) Cell and Tissue Engineering
BMDE 508 (3) Introduction to Micro and Nano-Bioengineering
CHEE 380 (3) Materials Science
ECSE 424 (3) Human-Computer Interaction
MECH 553 (3) Design and Manufacture of Microdevices
MIME 360 (3) Phase Transformations: Solids
MIME 362 (3) Mechanical Properties
MIME 470 (3) Engineering Biomaterials
PHYS 534 (3) Nanoscience and Nanotechnology

Biomechanics and Prosthetics

BMDE 503 (3) Biomedical Instrumentation
CHEE 561 (3) Introduction to Soft Tissue Biophysics
CHEE 563* (3) Biofluids and Cardiovascular Mechanics
MECH 315 (4) Mechanics 3
MECH 321 (3) Mechanics of Deformable Solids
MECH 530 (3) Mechanics of Composite Materials
MECH 561 (3) Biomechanics of Musculoskeletal Systems
MECH 563* (3) Biofluids and Cardiovascular Mechanics
MIME 360 (3) Phase Transformations: Solids
MIME 362 (3) Mechanical Properties

* Students choose either CHEE 563 or MECH 563.

Medical Physics and Imaging

BMDE 519 (3) Biomedical Signals and Systems
COMP 302 (3) Programming Languages and Paradigms
COMP 360 (3) Algorithm Design Techniques
COMP 423 (3) Data Compression
COMP 424 (3) Artificial Intelligence
COMP 558 (3) Fundamentals of Computer Vision
ECSE 303 (3) Signals and Systems 1
ECSE 304 (3) Signals and Systems 2
ECSE 412 (3) Discrete Time Signal Processing
PHYS 557 (3) Nuclear Physics

Neural Systems and Biosignal Processing
BMDE 501 (3) Selected Topics in Biomedical Engineering
BMDE 502 (3) BME Modelling and Identification
BMDE 503 (3) Biomedical Instrumentation
BMDE 519 (3) Biomedical Signals and Systems
ECSE 526 (3) Artificial Intelligence
PHYS 413 (3) Physical Basis of Physiology

Complementary Courses
0-6 credits
Up to 6 credits in the B.Eng., B.S.E., or B.Sc.(Arch.) program can also be credited to the Minor, with the permission of the Departmental Adviser and approval of the Minor Adviser. In particular, courses at the 200- level or higher that are prerequisites for certain specialization courses would be eligible, with permission of the Minor Adviser. By careful selection of complementary courses, the Minor can be satisfied with 9 additional credits in the student's major program or a maximum of 12 credits of overlap with the major program.

6.13.10.3 Biotechnology Minor
Biotechnology can be defined as the science of understanding, selecting, and promoting useful organisms and specific gene products for therapeutic purposes. It requires a broad comprehension of biology and engineering and detailed knowledge of at least one basic subject such as molecular genetics, protein chemistry, microbiology, or chemical engineering.

The Minor in Biotechnology, offered by the Faculties of Engineering and of Science, emphasizes an area relevant to biotechnology that is complementary to the student's main program. It is designed specifically for Chemical Engineering students; other Engineering students interested in taking this Minor should contact the Program Supervisor, Dr. Hugh Bennett (see below for contact information).

Students who are interested in this Minor should inform their academic adviser and the Program Supervisor in Year 1 and at the time of registration in Year 2. With the agreement of their academic adviser, students should submit their course list to the Program Supervisor, who will certify that the proposed program conforms to the requirements for the Minor.

The Biotechnology Minor is administered by the Faculty of Engineering Student Affairs Office, Engineering Student Centre, and by the Faculty of Science by Dr. Hugh Bennett, Program Supervisor.

Minor Adviser: Faculty Student Adviser in the Engineering Student Centre (Frank Dawson Adams Building, Room 22) OR Dr. Hugh Bennett (contact information below).

Dr. Hugh Bennett
Sheldon Biotechnology Centre
3773 University Street
Montreal, Quebec H3A 2B4
Telephone: 512-398-8083
Email: hugh.bennett@mcgill.ca

6.13.10.3.1 Bachelor of Engineering (B.Eng.) - Minor Biotechnology (for Engineering Students) (24 credits)
Revision, August 2011. Start of revision.

Minor Adviser: Prof. Hugh Bennett, Program Supervisor (Sheldon Biotechnology Centre, Lyman Duff Building) OR a faculty student adviser in the Engineering Student Centre (Frank Dawson Adams Building, Room 22).
This Minor is offered by the Faculties of Engineering and Science for students who wish to take biotechnology courses that are complementary to their area. It has been designed specifically for Chemical Engineering students; other Engineering students who are interested in the Minor should contact one of the Minor advisers indicated above.

To obtain the Biotechnology Minor, students must complete 24 credits, 18 of which must be exclusively for the Minor. Approved substitutions must be made for any of the required courses that are part of the student's major program.

The Department of Chemical Engineering permits students taking this Minor to complete BIOT 505 (Selected Topics in Biotechnology) as one of their technical complementary courses. Chemical Engineering students complete 15 credits beyond their 141-credit (115-credit for CEGEP students) B.Eng. program to obtain this Minor.

### Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOT 505</td>
<td>3</td>
<td>Selected Topics in Biotechnology</td>
</tr>
<tr>
<td>CHEE 200</td>
<td>4</td>
<td>Introduction to Chemical Engineering</td>
</tr>
<tr>
<td>CHEE 204</td>
<td>3</td>
<td>Chemical Manufacturing Processes</td>
</tr>
<tr>
<td>CHEE 474</td>
<td>3</td>
<td>Biochemical Engineering</td>
</tr>
</tbody>
</table>

OR

### Alternative Required Courses (for Chemical Engineering students)

A Chemical Engineering student may complete the Biotechnology Minor by taking the courses below plus one course from the list of complementary courses, not including MIME 310.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 200</td>
<td>3</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 201</td>
<td>3</td>
<td>Cell Biology and Metabolism</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>3</td>
<td>Basic Genetics</td>
</tr>
<tr>
<td>BIOT 505</td>
<td>3</td>
<td>Selected Topics in Biotechnology</td>
</tr>
<tr>
<td>MIMM 211</td>
<td>3</td>
<td>Introductory Microbiology</td>
</tr>
</tbody>
</table>

### Complementary Courses

12 credits selected from courses outside the Department of the student's major program and/or from the lists below. If courses are chosen from the lists below, at least three courses must be taken from one area of concentration as grouped.

#### Biomedicine

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 541</td>
<td>3</td>
<td>Cell and Molecular Biology of Aging</td>
</tr>
<tr>
<td>EXMD 504</td>
<td>3</td>
<td>Biology of Cancer</td>
</tr>
<tr>
<td>PATH 300</td>
<td>3</td>
<td>Human Disease</td>
</tr>
</tbody>
</table>

#### Chemistry

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 382</td>
<td>3</td>
<td>Organic Chemistry: Natural Products</td>
</tr>
<tr>
<td>CHEM 502</td>
<td>3</td>
<td>Advanced Bio-Organic Chemistry</td>
</tr>
<tr>
<td>CHEM 552</td>
<td>3</td>
<td>Physical Organic Chemistry</td>
</tr>
</tbody>
</table>

#### General

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIME 310</td>
<td>3</td>
<td>Engineering Economy</td>
</tr>
</tbody>
</table>

#### Immunology

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 261</td>
<td>4</td>
<td>Introduction to Dynamic Histology</td>
</tr>
<tr>
<td>BIOC 503</td>
<td>3</td>
<td>Immunochemistry</td>
</tr>
<tr>
<td>Course Code</td>
<td>Credits</td>
<td>Course Title</td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>MIMM 314</td>
<td>3</td>
<td>Immunology</td>
</tr>
<tr>
<td>MIMM 414</td>
<td>3</td>
<td>Advanced Immunology</td>
</tr>
<tr>
<td>PHGY 513</td>
<td>3</td>
<td>Cellular Immunology</td>
</tr>
</tbody>
</table>

**Management**

Note: Engineering students may not use these courses to count toward a Management minor, nor toward the Complementary Studies requirement.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 208</td>
<td>3</td>
<td>Microeconomic Analysis and Applications</td>
</tr>
<tr>
<td>MGCR 211</td>
<td>3</td>
<td>Introduction to Financial Accounting</td>
</tr>
<tr>
<td>MGCR 341</td>
<td>3</td>
<td>Finance 1</td>
</tr>
<tr>
<td>MGCR 352</td>
<td>3</td>
<td>Marketing Management 1</td>
</tr>
<tr>
<td>MGCR 472</td>
<td>3</td>
<td>Operations Management</td>
</tr>
</tbody>
</table>

**Microbiology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIMM 323</td>
<td>3</td>
<td>Microbial Physiology</td>
</tr>
<tr>
<td>MIMM 324</td>
<td>3</td>
<td>Fundamental Virology</td>
</tr>
<tr>
<td>MIMM 413</td>
<td>3</td>
<td>Parasitology</td>
</tr>
<tr>
<td>MIMM 465</td>
<td>3</td>
<td>Bacterial Pathogenesis</td>
</tr>
<tr>
<td>MIMM 466</td>
<td>3</td>
<td>Viral Pathogenesis</td>
</tr>
</tbody>
</table>

**Molecular Biology (Biology)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 300</td>
<td>3</td>
<td>Molecular Biology of the Gene</td>
</tr>
<tr>
<td>BIOL 314</td>
<td>3</td>
<td>Molecular Biology of Oncogenes</td>
</tr>
<tr>
<td>BIOL 520</td>
<td>3</td>
<td>Gene Activity in Development</td>
</tr>
<tr>
<td>BIOL 524</td>
<td>3</td>
<td>Topics in Molecular Biology</td>
</tr>
<tr>
<td>BIOL 551</td>
<td>3</td>
<td>Molecular Biology: Cell Cycle</td>
</tr>
</tbody>
</table>

**Molecular Biology (Biochemistry)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC 311</td>
<td>3</td>
<td>Metabolic Biochemistry</td>
</tr>
<tr>
<td>BIOC 312</td>
<td>3</td>
<td>Biochemistry of Macromolecules</td>
</tr>
<tr>
<td>BIOC 450</td>
<td>3</td>
<td>Protein Structure and Function</td>
</tr>
<tr>
<td>BIOC 454</td>
<td>3</td>
<td>Nucleic Acids</td>
</tr>
<tr>
<td>PSYT 455</td>
<td>3</td>
<td>Neurochemistry</td>
</tr>
</tbody>
</table>

**Physiology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXMD 401</td>
<td>3</td>
<td>Physiology and Biochemistry Endocrine Systems</td>
</tr>
<tr>
<td>EXMD 502</td>
<td>3</td>
<td>Advanced Endocrinology 01</td>
</tr>
<tr>
<td>EXMD 503</td>
<td>3</td>
<td>Advanced Endocrinology 02</td>
</tr>
<tr>
<td>PHAR 562</td>
<td>3</td>
<td>General Pharmacology 1</td>
</tr>
<tr>
<td>PHAR 563</td>
<td>3</td>
<td>General Pharmacology 2</td>
</tr>
<tr>
<td>PHGY 517</td>
<td>3</td>
<td>Artificial Internal Organs</td>
</tr>
<tr>
<td>PHGY 518</td>
<td>3</td>
<td>Artificial Cells</td>
</tr>
</tbody>
</table>
Pollution

Note: Engineering students may not use these courses to count toward the Environmental Engineering Minor.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIVE 225</td>
<td>(4)</td>
<td>Environmental Engineering</td>
</tr>
<tr>
<td>CIVE 430</td>
<td>(3)</td>
<td>Water Treatment and Pollution Control</td>
</tr>
<tr>
<td>CIVE 553</td>
<td>(3)</td>
<td>Stream Pollution and Control</td>
</tr>
</tbody>
</table>

Revision, August 2011. End of revision.

6.13.10.4 Chemistry Minor

The Departments of Chemistry and Chemical Engineering offer this Chemistry Minor, of particular interest to Chemical Engineering students, and a Chemical Engineering Minor, of interest to Chemistry students (described in the Faculty of Science section of this publication (see Chemistry programs)). Students taking the Chemistry Minor complete 10 credits of required courses in physical and organic chemistry, and choose an additional 15 credits of complementary courses from the areas of inorganic, analytical, organic, and physical chemistry.

Minor Adviser (program coordinator): Dr. Gonzalo Cosa (Chemistry)

For more information about the Chemical Engineering Minor, see Prof. David Cooper (Chemical Engineering).

6.13.10.4.1 Bachelor of Engineering (B.Eng.) - Minor Chemistry (25 credits)

Minor Adviser (program coordinator): Dr. Gonzalo Cosa (Department of Chemistry)

Program credit weight: 25 credits

A passing grade for courses in the Minor is a C.

Required Courses

10 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEE 310*</td>
<td>(3)</td>
<td>Physical Chemistry for Engineers</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>(4)</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 233*</td>
<td>(3)</td>
<td>Topics in Physical Chemistry</td>
</tr>
<tr>
<td>CHEM 234**</td>
<td>(3)</td>
<td>Topics in Organic Chemistry</td>
</tr>
</tbody>
</table>

* Students choose either CHEM 233 or CHEE 310
** or CEGEP equivalent

Complementary Courses

15 credits from the following lists, two courses of which must be laboratory courses (* indicates lab).

Note that CHEM 212 is a prerequisite for most of the courses listed below, and CHEM 223 (Introductory Physical Chemistry 1) and CHEM 243 (Introductory Physical Chemistry 2) or their equivalents are prerequisites for the Physical Chemistry courses. If students take CHEM 222 (Introductory Organic Chemistry 2), which includes a lab, instead of CHEM 234, they will receive credit for one of the two required laboratory courses, but they must complete a total of 25 credits in chemistry for the Minor.

Inorganic Chemistry

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 281</td>
<td>(3)</td>
<td>Inorganic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 371*</td>
<td>(2)</td>
<td>Inorganic Chemistry Laboratory</td>
</tr>
<tr>
<td>CHEM 381</td>
<td>(3)</td>
<td>Inorganic Chemistry 2</td>
</tr>
<tr>
<td>CHEM 591</td>
<td>(3)</td>
<td>Bioinorganic Chemistry</td>
</tr>
</tbody>
</table>

Analytical Chemistry

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 287</td>
<td>(2)</td>
<td>Introductory Analytical Chemistry</td>
</tr>
<tr>
<td>CHEM 297*</td>
<td>(1)</td>
<td>Introductory Analytical Chemistry Laboratory</td>
</tr>
<tr>
<td>CHEM 367</td>
<td>(3)</td>
<td>Instrumental Analysis 1</td>
</tr>
<tr>
<td>CHEM 377</td>
<td>(3)</td>
<td>Instrumental Analysis 2</td>
</tr>
</tbody>
</table>
Organic Chemistry

- CHEM 302 (3) Introductory Organic Chemistry 3
- CHEM 352 (3) Structural Organic Chemistry
- CHEM 362* (2) Advanced Organic Chemistry Laboratory
- CHEM 382 (3) Organic Chemistry: Natural Products

Physical Chemistry

- CHEM 345 (3) Molecular Properties and Structure 1
- CHEM 355 (3) Molecular Properties and Structure 2
- CHEM 393* (2) Physical Chemistry Laboratory 2
- CHEM 574 (3) Introductory Polymer Chemistry

6.13.10.5 Computer Science Courses and Minor Program

The School of Computer Science offers an extensive range of courses for Engineering students interested in computers. Engineering students may obtain a Computer Science Minor as part of their B.Eng., B.S.E., or B.Sc.(Arch.) degree by completing 24 credits of courses, passed with a grade of C or better.

Minor Adviser: Students interested in this Minor should see Liette Chin, Undergraduate Program Coordinator (School of Computer Science, Lorne Trottier Building, Room 2070) and the Minor Adviser in Computer Science.


6.13.10.51 Computer Science Courses

The School of Computer Science offers an extensive range of courses for Engineering students interested in computers. The course taken by students in most B.Eng. programs (COMP 208) and other courses included in the core of the various B.Eng. and B.S.E. programs are listed below.

See the Courses section of this publication to see other courses offered by the School of Computer Sciences (subject code COMP).

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 202</td>
<td>(3)</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>COMP 208</td>
<td>(3)</td>
<td>Computers in Engineering</td>
</tr>
<tr>
<td>COMP 250</td>
<td>(3)</td>
<td>Introduction to Computer Science</td>
</tr>
<tr>
<td>COMP 302</td>
<td>(3)</td>
<td>Programming Languages and Paradigms</td>
</tr>
</tbody>
</table>

6.13.10.52 Bachelor of Engineering (B.Eng.) - Minor Computer Science (24 credits)

B.Eng. - Minor Computer Science (24 credits)

Minor Adviser: Students interested in this Minor should see Liette Chin, Undergraduate Program Coordinator, in the School of Computer Science (Lorne Trottier Building, Room 2070) to obtain the appropriate forms, and should see both the Minor Adviser in Computer Science and their department adviser for approval of their course selection. Forms must be submitted and approved before the end of the Course Change (drop/add) period of the student’s final term.

Note: This Minor is open to B.Eng., B.S.E., and B.Sc.(Arch.) students in Engineering.

Engineering students may obtain the Computer Science minor as part of their B.Eng., B.S.E., or B.Sc.(Arch.) degree by completing the 24-credits of courses passed with a grade of C or better. In general, some complementary courses within B.Eng. and B.S.E. programs may be used to satisfy some of these requirements, but the Minor will require at least 12 extra credits from Computer Science (COMP) courses beyond those needed for the B.Eng. or B.S.E. degree. Students should consult their departments about the use of complementaries, and credits that can be double counted.

Note: COMP 202 and COMP 208 (compulsory for some Engineering students do not form part of the Minor in Computer Science.

For more information, see the School of Computer Science website: http://www.cs.mcgill.ca.

Required Course

3 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 206</td>
<td>(3)</td>
<td>Introduction to Software Systems</td>
</tr>
</tbody>
</table>

Complementary Courses
21 credits

3 credits from the following:

- COMP 203 (3) Introduction to Computing 2
- COMP 250 (3) Introduction to Computer Science

3 credits from the following:

- COMP 302 (3) Programming Languages and Paradigms
- COMP 303 (3) Software Development

3 credits from the following:

- COMP 273 (3) Introduction to Computer Systems
- ECSE 221 (3) Introduction to Computer Engineering

3 credits from the following:

- COMP 350 (3) Numerical Computing
- MECH 309 (3) Numerical Methods in Mechanical Engineering

0-3 credits from the following:

- COMP 251 (3) Data Structures and Algorithms

6-9 credits chosen from other Computer Science courses at the 300- level or higher.

Notes:

A. COMP 203 and COMP 250 are considered to be equivalent from a prerequisite point of view, and cannot both be taken for credit.
B. COMP 208 may be taken before COMP 250; however, it cannot be taken for credit in the same term or afterward.
C. COMP 396 (Undergraduate Research Project) cannot be taken for credit toward this Minor.

Courses that make considerable use of computing from other departments may also be selected, with the approval of the School of Computer Science. Students should consult with their advisers about counting specific courses.

**6.13.10.6 Construction Engineering and Management Minor**

Students taking the Minor in Construction Engineering and Management complete 15 credits of required courses in management and law. Students choose complementary courses from the areas of either building structures or heavy construction, and from other construction- and management-related courses.

This Minor is particularly designed for Civil Engineering students.

Minor Adviser: Prof. L. Chouinard, Macdonald Engineering Building, Room 491 (Telephone: 514-398-6446)

**6.13.10.6.1 Bachelor of Engineering (B.Eng.) - Minor Construction Engineering and Management (24 credits)**

Minor Adviser: Prof. L. Chouinard, Macdonald Engineering Building, Room 491 (Telephone: 514-398-6446)

Minor program credit weight: 24-25 credits

Note: This Minor is particularly designed for Civil Engineering students but, is open to all B.Eng., B.S.E., and B.Sc.(Arch.) students.

All courses in the Minor must be passed with a grade of C or better.

**Prerequisites**

- CIVE 208 (3) Civil Engineering System Analysis
- CIVE 302 (3) Probabilistic Systems
- COMP 208 (3) Computers in Engineering
MIME 310 (3)  Engineering Economy

**Required Courses: Management and Law**

15 credits

- CIVE 324 (3)  Construction Project Management
- FACC 220 (3)  Law for Architects and Engineers
- INDR 294 (3)  Introduction to Labour-Management Relations
- MGCR 211 (3)  Introduction to Financial Accounting
- MGCR 341 (3)  Finance 1

**Complementary Courses**

3-4 credits (4 credits from List A OR 3 credits from List B)

**List A - Building Structures**

4 credits from the following:

- ARCH 447 (2)  Lighting
- ARCH 451 (2)  Building Regulations and Safety
- ARCH 554 (2)  Mechanical Services
- CIVE 492 (2)  Structures

OR

**List B - Heavy Construction**

3 credits from the following:

- MIME 322 (3)  Rock Fragmentation
- MIME 333 (3)  Materials Handling

**Construction-Related Complementary Courses**

6 credits from the following:

- BUSA 462 (3)  Management of New Enterprises
- CIVE 446 (3)  Construction Engineering
- CIVE 527 (3)  Renovation and Preservation: Infrastructure
- ECSE 461 (3)  Electric Machinery
- FINE 445 (3)  Real Estate Finance
- MIME 520 (3)  Stability of Rock Slopes
- MIME 521 (3)  Stability of Underground Openings
- MPMC 321* (3)  Mécanique des roches et contrôle des terrains

* Course offered in French at École Polytechnique in Montreal

**6.13.10.7 Economics Minor**

Engineering students who want to complete a minor in Economics are required to complete the following program rather than one of the minor concentrations offered by the Department of Economics in the *Faculty of Arts* section of this publication, unless they have obtained permission from the Faculty of Engineering.

Minor Adviser: Faculty Student Adviser in the Engineering Student Centre (Frank Dawson Adams Building, Room 22)
Bachelor of Engineering (B.Eng.) - Minor Economics (18 credits)

Minor Adviser: Faculty Student Adviser in the Engineering Student Centre (Frank Dawson Adams Building, Room 22)

Program credit weight: 18 credits

This Minor consists of 18 credits of required and complementary courses given in the Economics Department. In addition, it is presumed that all Engineering students will have a sufficient background in statistics. Engineering Economy, MIME 310, does not form part of this Minor. Engineering students who want to complete a minor in economics are required to complete the following program rather than one of the minor concentrations offered by the Department of Economics in the Faculty of Arts section of this publication, unless they have obtained permission from the Faculty of Engineering.

All courses in the Minor must be passed with a grade of C or better.

**Required Courses**

9 credits

- ECON 209* (3) Macroeconomic Analysis and Applications
- ECON 230D1** (3) Microeconomic Theory
- ECON 230D2** (3) Microeconomic Theory

* This requirement is waived for students who choose ECON 330D1/ECON 330D2 from the list of complementary courses. Students may not take both ECON 209 and ECON 330D1/ECON 330D2.

** Students may, with consent of instructor, take ECON 250D1/ ECON 250D2 Introduction to Economic Theory: Honours, in place of ECON 230D1/ECON 230D2.

**Complementary Courses**

9 credits from:

- ECON 225 (3) Economics of the Environment
- ECON 303 (3) Canadian Economic Policy
- ECON 305 (3) Industrial Organization
- ECON 308 (3) Governmental Policy Towards Business
- ECON 311 (3) United States Economic Development
- ECON 313 (3) Economic Development 1
- ECON 314 (3) Economic Development 2
- ECON 316 (3) The Underground Economy
- ECON 326 (3) Ecological Economics
- ECON 329 (3) Economics of Confederation
- ECON 330D1 (3) Macroeconomic Theory
- ECON 330D2 (3) Macroeconomic Theory
- ECON 331 (3) Economic Development: Russia and USSR
- ECON 335 (3) The Japanese Economy
- ECON 337 (3) Introductory Econometrics 1
- ECON 344 (3) The International Economy 1830-1914
- ECON 345 (3) The International Economy since 1914
- ECON 347 (3) Economics of Climate Change
- ECON 348 (3) Urban Economics
- ECON 404 (3) Transportation
- ECON 405 (3) Natural Resource Economics
- ECON 406 (3) Topics in Economic Policy
- ECON 408 (3) Public Sector Economics 1
- ECON 409 (3) Public Sector Economics 2
- ECON 411 (3) Economic Development: A World Area
ECON 416 (3) Topics in Economic Development 2
ECON 420 (3) Topics in Economic Theory
ECON 426 (3) Labour Economics
ECON 434 (3) Current Economic Problems
ECON 440 (3) Health Economics
ECON 447 (3) Economics of Information and Uncertainty
ECON 468 (3) Econometrics 1 - Honours
ECON 469 (3) Econometrics 2 - Honours
ECON 525 (3) Project Analysis
ECON 546 (3) Game Theory

Note: Mining Engineering students are permitted to include (MIME 526) Mineral Economics among the Complementary Courses.

6.13.10.8 Environmental Engineering Minor

The Environmental Engineering Minor is offered for students in Engineering and in the Department of Bioresource Engineering wishing to pursue studies in this area. Students completing this Minor take an introductory course in environmental engineering, bio-environmental engineering, or environmental aspects of technology, then choose from a wide variety of complementary courses within and outside the Faculty of Engineering on environmental topics. Students may choose to participate in the Barbados Field Study Semester (BFSS) or in the Barbados Interdisciplinary Tropical Studies (BITS) field semester and have the field study courses count toward this Minor.

The Environmental Engineering Minor is administered by the Department of Civil Engineering and Applied Mechanics.

Minor Adviser: Prof. R. Gehr, Macdonald Engineering Building, Room 569E

For more information on the Barbados Field Study Semester, see www.mcgill.ca/bfss.

For more information on the Barbados Interdisciplinary Tropical Studies field semester, see www.mcgill.ca/bits.

For more information on environmental studies in the Faculty of Engineering, see www.mcgill.ca/enveng.

6.13.10.8.1 Bachelor of Engineering (B.Eng.) - Minor Environmental Engineering (21 credits)

Minor Adviser: Prof. R. Gehr, Macdonald Engineering Building, Room 569E

Minor program credit weight: 21-22 credits

The Environmental Engineering Minor is administered by the Department of Civil Engineering and Applied Mechanics and is offered for all students in Engineering (including B.S.E. students) and in the Department of Bioresource Engineering wishing to pursue studies in this area.

A maximum of 12 credits of coursework in the student’s major may double-count with the Minor.

To complete the Minor in Environmental Engineering, students must obtain a grade of C or better in all approved courses in the Minor, and satisfy the requirements of both the Minor and their major program.

Note: Not all courses listed are offered every year. Students should see the "Courses" section of this publication to know if a course is offered.

Complementary Courses

21-22 credits

18 credits from Stream A, B, or C below

and

One course(3-4 credits) from the following list:

BREE 327 (3) Bio-Environmental Engineering
CHEE 230 (3) Environmental Aspects of Technology
CIVE 225 (4) Environmental Engineering

Stream A

15 credits* from the Engineering Course List and 3 credits from the Non-Engineering Course List below

*A minimum of 6 credits must be from outside the student’s department. A maximum of 6 credits of research project courses may be counted toward this category, provided the project has sufficient environmental engineering content (project requires approval of project supervisor and coordinator of the Minor).

Stream B
15 credits of courses that make up the "Barbados Field Study Semester" below, provided the project for CIVE/AGRI/URBP 519 Sustainable Development Plans has sufficient environmental engineering content (project requires approval of the Coordinator of the Minor);

AND

One courses (3-4) credits chosen from the Engineering Course List below, excluding CHEE 496.

**Barbados Field Study Courses**

**Required Courses**

6 credits

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>URBP 507</td>
<td>(3) Planning and Infrastructure</td>
</tr>
<tr>
<td>URBP 520</td>
<td>(3) Globalization: Planning and Change</td>
</tr>
</tbody>
</table>

**Complementary Courses**

9 credits

One of the following cross-listed courses (3 credits):

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 452</td>
<td>(3) Water Resources in Barbados</td>
</tr>
<tr>
<td>CIVE 452</td>
<td>(3) Water Resources in Barbados</td>
</tr>
</tbody>
</table>

AND

One of the following cross-listed project courses (6 credits):

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 519</td>
<td>(6) Sustainable Development Plans</td>
</tr>
<tr>
<td>CIVE 519</td>
<td>(6) Sustainable Development Plans</td>
</tr>
<tr>
<td>URBP 519</td>
<td>(6) Sustainable Development Plans</td>
</tr>
</tbody>
</table>

**Stream C**

9 credits of courses specified from the "Barbados Interdisciplinary Tropical Studies (BITS)" field semester below, provided the project has sufficient environmental engineering content (project requires approval of the Coordinator of the Minor):

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEBI 425</td>
<td>(3) Tropical Energy and Food</td>
</tr>
<tr>
<td>AEBI 427</td>
<td>(6) Barbados Interdisciplinary Project</td>
</tr>
</tbody>
</table>

AND

9 credits chosen from the Engineering Course List below, excluding CHEE 496.

**Engineering Course List**

Courses offered at the Macdonald campus:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>BREE 217</td>
<td>(3) Hydrology and Water Resources</td>
</tr>
<tr>
<td>BREE 322</td>
<td>(3) Organic Waste Management</td>
</tr>
<tr>
<td>BREE 416</td>
<td>(3) Engineering for Land Development</td>
</tr>
<tr>
<td>BREE 518</td>
<td>(3) Bio-Treatment of Wastes</td>
</tr>
</tbody>
</table>

Courses offered at the Downtown campus:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 377</td>
<td>(3) Energy, Environment and Buildings</td>
</tr>
<tr>
<td>CHEE 351</td>
<td>(3) Separation Processes</td>
</tr>
<tr>
<td>CHEE 370</td>
<td>(3) Elements of Biotechnology</td>
</tr>
<tr>
<td>CHEE 496</td>
<td>(3) Environmental Research Project</td>
</tr>
</tbody>
</table>
CHEE 591 (3)  Environmental Bioremediation
CHEE 592 (3)  Industrial Air Pollution Control
CHEE 593 (3)  Industrial Water Pollution Control
CIVE 225 (4)  Environmental Engineering
CIVE 323 (3)  Hydrology and Water Resources
CIVE 421 (3)  Municipal Systems
CIVE 428 (3)  Water Resources and Hydraulic Engineering
CIVE 430 (3)  Water Treatment and Pollution Control
CIVE 451 (3)  Geoenvironmental Engineering
CIVE 550 (3)  Water Resources Management
CIVE 555 (3)  Environmental Data Analysis
CIVE 572 (3)  Computational Hydraulics
CIVE 573 (3)  Hydraulic Structures
CIVE 574 (3)  Fluid Mechanics of Water Pollution
CIVE 577 (3)  River Engineering
CIVE 584 (3)  Groundwater Engineering
MECH 447 (3)  Combustion
MECH 526 (3)  Manufacturing and the Environment
MECH 534 (3)  Air Pollution Engineering
MECH 535 (3)  Turbomachinery and Propulsion
MIME 422 (3)  Mine Ventilation
MIME 512 (3)  Corrosion and Degradation of Materials
MPMC 328 (3)  Environnement et gestion des rejets miniers
URBP 506 (3)  Environmental Policy and Planning

**Non-Engineering Course List**

Courses offered at the Macdonald campus:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSCI 230</td>
<td>(3)</td>
<td>Introductory Microbiology</td>
</tr>
<tr>
<td>MICR 331</td>
<td>(3)</td>
<td>Microbial Ecology</td>
</tr>
<tr>
<td>MICR 341</td>
<td>(3)</td>
<td>Mechanisms of Pathogenicity</td>
</tr>
<tr>
<td>RELG 270</td>
<td>(3)</td>
<td>Religious Ethics and the Environment</td>
</tr>
<tr>
<td>SOIL 210</td>
<td>(3)</td>
<td>Principles of Soil Science</td>
</tr>
<tr>
<td>SOIL 331</td>
<td>(3)</td>
<td>Soil Physics</td>
</tr>
<tr>
<td>WILD 375</td>
<td>(3)</td>
<td>Issues: Environmental Sciences</td>
</tr>
<tr>
<td>WILD 415</td>
<td>(2)</td>
<td>Conservation Law</td>
</tr>
<tr>
<td>WOOD 420</td>
<td>(3)</td>
<td>Environmental Issues: Forestry</td>
</tr>
</tbody>
</table>

Courses offered at the Downtown campus:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 206</td>
<td>(3)</td>
<td>Environment and Culture</td>
</tr>
<tr>
<td>BIOL 205</td>
<td>(3)</td>
<td>Biology of Organisms</td>
</tr>
<tr>
<td>BIOL 432</td>
<td>(3)</td>
<td>Limnology</td>
</tr>
<tr>
<td>CHEM 307</td>
<td>(3)</td>
<td>Analytical Chemistry of Pollutants</td>
</tr>
</tbody>
</table>
Environment and the Law (3)
Economics of the Environment (3)
Ecological Economics (3)
Economics of Climate Change (3)
Hydrogeology (3)
Geographical Perspectives: World Environmental Problems (3)
Introductory Geo-Information Science (3)
Environmental Systems (3)
Global Change: Past, Present and Future (3)
Environmental Management 1 (3)
Principles of Remote Sensing (3)
Climatic Environments (3)
Environmental Management 2 (3)
Introductory Microbiology (3)

6.13.10.9 Minor in Environment

Environmental studies focus on the interactions between humans and their natural and technological environments. Environmental problems are complex, and their satisfactory solutions require the synthesis of social, scientific, and institutional knowledge.

The Minor in Environment is offered and administered by the McGill School of Environment (MSE).

Since the program comprises a total of 18 credits for the Minor, additional credits beyond those needed for the B.Eng. degree are required. Students wishing to complete the Minor should prepare a program and have it approved by both their regular Engineering departmental adviser and the MSE Adviser. For program details, see the McGill School of Environment section of this publication (Minor in Environment).

Note: Engineering students interested in this Minor must submit a completed Course Authorization Form to the Engineering Student Centre (Frank Dawson Adams Building, Room 22).

Minor Adviser: Students interested in this Minor should contact Kathy Roulet, MSE Program Adviser (email: kathy.roulet@mcgill.ca; telephone: 514-398-4306).

6.13.10.10 Minor Programs in Finance, Management, Marketing, and Operations Management

Prerequisite: None

Management Minors Adviser: Students considering one of these minor programs should consult a Faculty Student Adviser in the Engineering Student Centre (Frank Dawson Adams Building, Room 22) or an adviser in the Desautels Faculty of Management.

Many engineers begin to assume management functions within a few years of graduation. They can, at this stage, take up the study of economics, behavioural science, and other management subjects. Students wishing to include such studies in their undergraduate program can take suitable courses from Engineering and Management.

Courses are available, subject to timetable requirements, from the core program of the Desautels Faculty of Management. Some courses from the Management core program have considerable overlap with Engineering courses and thus are not available to Engineering students.

A student embarking on a minor must be prepared to take credits additional to their Engineering program. Students in a B.Eng. or B.S.E. program may be able to count up to 6 credits of Complementary Studies Group B courses (Humanities and Social Sciences, Management Studies, and Law courses) toward both their Engineering major program and a Management minor where applicable. More information about Complementary Studies is given in the B.Eng./B.S.E. program section.

Students must have a CGPA of 3.0 or better to be considered for one of these Minor programs.

Students planning to take any course with statistics as a prerequisite must have completed MGCR 271 (Business Statistics) or an equivalent course approved by the BCom Student Affairs Office.

Detailed information on these Minor programs can be found in the Desautels Faculty of Management section of this publication (see Minors for Non-Management Students).

Further information can also be found at www.mcgill.ca/engineering/degrees/minors.

6.13.10.11 Materials Engineering Minor

Students taking the Materials Engineering Minor complete 15 credits of required courses in materials science, materials engineering, electronic properties of materials, metallic and ceramic powders processing, and applications of polymers, and choose three complementary courses in other areas related to materials engineering.
Minor Adviser: Prof. M. Brochu (Minor Coordinator), Wong Building, Room 2640

6.13.10.11 Bachelor of Engineering (B.Eng.) – Minor Materials Engineering (24 credits)

Revision, August 2011. Start of revision.

Engineering students may obtain a Materials Engineering Minor by completing 24 credits chosen from the required and complementary courses listed below. By a careful selection of complementary courses, Engineering students may obtain this Minor with a minimum of 15 additional credits.

Required Courses
15 credits
CHEE 380* (3) Materials Science
CHEE 484 (3) Materials Engineering
MIME 260* (3) Materials Science and Engineering
MIME 345 (3) Applications of Polymers
MIME 465 (3) Metallic and Ceramic Powders Processing
MIME 467 (3) Electronic Properties of Materials

* Students choose either CHEE 380 or MIME 260.

Complementary Courses
9 credits from the following:
CHEE 487 (3) Chemical Processing: Electronics Industry
ECSE 545 (3) Microelectronics Technology
MECH 530 (3) Mechanics of Composite Materials
MIME 360 (3) Phase Transformations: Solids
MIME 512 (3) Corrosion and Degradation of Materials
MIME 560 (3) Joining Processes
MIME 561 (3) Advanced Materials Design
MIME 563 (3) Hot Deformation of Metals
MIME 566 (3) Texture, Structure & Properties of Polycrystalline Materials
MIME 569 (3) Electron Beam Analysis of Materials

Revision, August 2011. End of revision.

6.13.10.12 Mathematics Minor

Students in the Minor in Mathematics for Engineering students complete 18 credits of Mathematics courses (subject code MATH), not including Mathematics courses that are required in their Engineering program (or equivalent courses), and choose 6 credits from other Mathematics-related courses.

Minor Adviser: Faculty Student Adviser in the Engineering Student Centre (Frank Dawson Adams Building, Room 22) AND an adviser designated by the Department of Mathematics and Statistics, normally beginning in Year 2 (please consult the Department of Mathematics and Statistics for this adviser). Course selection for this Minor must be done in conjunction with the Minor advisers.

Course Selection
At least 18 credits must be chosen from the Mathematics and Statistics courses approved for the Mathematics Major or Honours program, or from the following courses:
MATH 249 (3) Honours Complex Variables
MATH 363 (3) Discrete Mathematics
MATH 381 (3) Complex Variables and Transforms

The remaining credits may be chosen from mathematically-allied courses.

The following courses cannot be used toward the Minor:

MATH 222 (3) Calculus 3
MATH 223 (3) Linear Algebra
MATH 247 (3) Honours Applied Linear Algebra
MATH 248 (3) Honours Advanced Calculus
MATH 262 (3) Intermediate Calculus
MATH 263 (3) Ordinary Differential Equations for Engineers
MATH 264 (3) Advanced Calculus for Engineers
MATH 270 (3) Applied Linear Algebra
MATH 271 (3) Linear Algebra and Partial Differential Equations
MATH 314 (3) Advanced Calculus
MATH 315 (3) Ordinary Differential Equations
MATH 319 (3) Introduction to Partial Differential Equations
MATH 325 (3) Honours Ordinary Differential Equations

6.13.10.13 Mining Engineering Minor

Students taking the Mining Engineering Minor complete 12 credits of required courses in mining engineering, including an introduction to the minerals industry, courses in mining science and technology, rock fragmentation and materials handling, and an industrial work term. Students choose 12 credits from mining-related courses within the Departments of Mining and Materials Engineering, Mechanical Engineering, Civil Engineering, and Chemical Engineering.

One of the required courses is a work term for which enrolment may be limited.

Minor Adviser: Prof. Hani Mitri (Minor Coordinator), Frank Dawson Adams Building, Room 121

6.13.10.31 Bachelor of Engineering (B.Eng.) - Minor Mining Engineering (24 credits)

Minor Adviser: Prof. Hani Mitri (Minor Coordinator)
Frank Dawson Adams Building, Room 121

Program credit weight: 24 credits

One of the required courses is a work term for which enrolment may be limited.

Required Courses
12 credits

MIME 200 (3) Introduction to the Minerals Industry
MIME 291 (2) Industrial Work Period 2
MIME 313 (1) Mining Science and Technology Seminar
MIME 322 (3) Rock Fragmentation
MIME 333 (3) Materials Handling

Complementary Courses
12 credits

List A: Mining Engineering

6-12 credits from the following:
MIME 320  (3)  Extraction of Energy Resources
MIME 323  (3)  Rock and Soil Mass Characterization
MIME 325  (3)  Mineral Industry Economics
MIME 341  (3)  Introduction to Mineral Processing
MIME 419  (3)  Surface Mining
MIME 422  (3)  Mine Ventilation
MIME 426  (3)  Development and Services
MIME 520  (3)  Stability of Rock Slopes
MIME 521  (3)  Stability of Underground Openings
MIME 526  (3)  Mineral Economics

**List B: Mechanical Engineering**

0-6 credits from the following:

- MECH 497  (3)  Value Engineering
- MECH 554  (3)  Microprocessors for Mechanical Systems
- MECH 557  (3)  Mechatronic Design
- MECH 572  (3)  Introduction to Robotics
- MECH 573  (3)  Mechanics of Robotic Systems
- MECH 577  (3)  Optimum Design

**List C: Civil Engineering**

0-6 credits from the following:

- CIVE 416  (3)  Geotechnical Engineering
- CIVE 451  (3)  Geoenvironmental Engineering
- CIVE 462  (3)  Design of Steel Structures
- CIVE 463  (3)  Design of Concrete Structures
- CIVE 527  (3)  Renovation and Preservation: Infrastructure

**List D: Chemical Engineering**

0-6 credits from the following:

- CHEE 453  (4)  Process Design
- CHEE 455  (4)  Process Control
- CHEE 484  (3)  Materials Engineering

**6.13.10.14 Physics Minor**

Students in Honours Electrical Engineering taking the Physics Minor take 9 credits of required courses in thermal physics and honours quantum physics and choose three other Physics courses (subject code PHYS).

Minor Adviser: Prof. F. Buchinger (Department of Physics)

**6.13.10.141 Bachelor of Engineering (B.Eng.) - Minor Physics (18 credits)**

Minor Adviser: Prof. F. Buchinger, Department of Physics

Students in Honours Electrical Engineering may obtain this Minor as part of their B.Eng. degree by completing 18 credits of Physics courses, as listed below.

**Required Courses**

9 credits
PHYS 253 (3) Thermal Physics
PHYS 357* (3) Honours Quantum Physics 1
PHYS 457* (3) Honours Quantum Physics 2

* Students who take PHYS 357 and PHYS 457 can omit PHYS 271 from their normal Electrical Engineering program.

Complementary Courses
9 credits from the following:

PHYS 351 (3) Honours Classical Mechanics 2
PHYS 362 (3) Statistical Mechanics
PHYS 432 (3) Physics of Fluids
PHYS 514 (3) General Relativity
PHYS 551 (3) Quantum Theory
PHYS 557 (3) Nuclear Physics
PHYS 558 (3) Solid State Physics
PHYS 559 (3) Advanced Statistical Mechanics
PHYS 562 (3) Electromagnetic Theory
PHYS 567 (3) Particle Physics

6.13.10.15 Software Engineering Minor
This Minor will prepare an engineering student for a career in software engineering. It will provide a foundation in basic computer science, computer programming, and software engineering practice.

Minor Adviser: Faculty Student Adviser in the Engineering Student Centre (Frank Dawson Adams Building, Room 22)

6.13.10.151 Bachelor of Engineering (B.Eng.) - Minor Software Engineering (24 credits)
Minor Adviser: Faculty Student Adviser in the Engineering Student Centre (Frank Dawson Adams, Room 22)

The Software Engineering Minor will prepare an engineering student for a career in software engineering. It will provide a foundation in basic computer science, computer programming, and software engineering practice.

This Minor consists of 24 credits (eight courses). Up to four courses (12 credits) may be double-counted for credit toward the B. Eng. degree in Electrical Engineering or Computer Engineering. Students in other programs may double-count up to three courses (9 credits).

Students considering this Minor should consult with the Minor Adviser listed above.

Required Courses
9 credits

ECSE 221 (3) Introduction to Computer Engineering
ECSE 321 (3) Introduction to Software Engineering
ECSE 428 (3) Software Engineering Practice

Complementary Courses
15 credits
3 credits from the following:

COMP 203 (3) Introduction to Computing 2
COMP 250 (3) Introduction to Computer Science

Engineering Courses
3-12 credits from the following:
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEE 458</td>
<td>3</td>
<td>Computer Applications</td>
</tr>
<tr>
<td>CHEE 571</td>
<td>3</td>
<td>Small Computer Applications: Chemical Engineering</td>
</tr>
<tr>
<td>CIVE 460</td>
<td>3</td>
<td>Matrix Structural Analysis</td>
</tr>
<tr>
<td>CIVE 550</td>
<td>3</td>
<td>Water Resources Management</td>
</tr>
<tr>
<td>CIVE 572</td>
<td>3</td>
<td>Computational Hydraulics</td>
</tr>
<tr>
<td>ECSE 322</td>
<td>3</td>
<td>Computer Engineering</td>
</tr>
<tr>
<td>ECSE 420</td>
<td>3</td>
<td>Parallel Computing</td>
</tr>
<tr>
<td>ECSE 421</td>
<td>3</td>
<td>Embedded Systems</td>
</tr>
<tr>
<td>ECSE 422</td>
<td>3</td>
<td>Fault Tolerant Computing</td>
</tr>
<tr>
<td>ECSE 424</td>
<td>3</td>
<td>Human-Computer Interaction</td>
</tr>
<tr>
<td>ECSE 427</td>
<td>3</td>
<td>Operating Systems</td>
</tr>
<tr>
<td>ECSE 429</td>
<td>3</td>
<td>Software Validation</td>
</tr>
<tr>
<td>ECSE 526</td>
<td>3</td>
<td>Artificial Intelligence</td>
</tr>
<tr>
<td>ECSE 532</td>
<td>3</td>
<td>Computer Graphics</td>
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<tr>
<td>MECH 524</td>
<td>3</td>
<td>Computer Integrated Manufacturing</td>
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<tr>
<td>MECH 539</td>
<td>3</td>
<td>Computational Aerodynamics</td>
</tr>
<tr>
<td>MECH 545</td>
<td>3</td>
<td>Advanced Stress Analysis</td>
</tr>
<tr>
<td>MECH 576</td>
<td>3</td>
<td>Geometry in Mechanics</td>
</tr>
</tbody>
</table>

**Computer Science Courses**

0-6 credits from the following (no more than 6 credits will count toward the Minor):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 302</td>
<td>3</td>
<td>Programming Languages and Paradigms</td>
</tr>
<tr>
<td>COMP 335</td>
<td>3</td>
<td>Software Engineering Methods</td>
</tr>
<tr>
<td>COMP 421</td>
<td>3</td>
<td>Database Systems</td>
</tr>
<tr>
<td>COMP 424</td>
<td>3</td>
<td>Artificial Intelligence</td>
</tr>
<tr>
<td>COMP 527</td>
<td>3</td>
<td>Logic and Computation</td>
</tr>
</tbody>
</table>

### 6.13.10.16 Technological Entrepreneurship Minor

This Minor is offered jointly by the Faculties of Engineering and Management. It will appeal to those students who have a concept, process, or product idea in mind and who want to explore the opportunity of commercializing it. It will also be of interest to students who have a general interest in entrepreneurship and intend to pursue a career in small- and medium-sized high-technology/engineering companies.

Students taking the Minor choose 18 credits from courses in technological entrepreneurship (entrepreneurship, marketing management, organization policy, marketing of technology, leadership, and human resources management). Students can also choose to take business plan design and project courses, which give students an opportunity to design a business plan and develop a technology or engineering project.

Minor Adviser: Faculty Student Adviser in the Engineering Student Centre (Frank Dawson Adams Building, Room 22)

### 6.13.10.6.1 Bachelor of Engineering (B.Eng.) - Minor Technological Entrepreneurship (18 credits)

Minor Adviser: Faculty Student Adviser in the Engineering Student Centre (Frank Dawson Adams, Room 22)

This Minor is offered jointly by the Faculties of Engineering and Management. It will appeal to those students who have a concept, process, or product idea in mind and who want to explore the opportunity of commercializing it. It will also be of interest to students who have a general interest in entrepreneurship and intend to pursue a career in small- and medium-sized high-technology/engineering companies.

Engineering students (including B.Eng., B.S.E., and B.Sc.(Arch.) students) may obtain the Technological Entrepreneurship Minor by completing six courses (18 credits). B.Eng. and B.S.E. students may double-count up to two courses (6 credits) of Complementary Studies (Group B, Humanities, and Social Sciences courses) toward the Minor.

Students considering this Minor should consult the Minor Adviser listed above.

### Complementary Courses

18 credits (six courses) from the following:
7 McGill School of Environment

7.1 About the McGill School of Environment

McGill’s Faculties of Agricultural and Environmental Sciences, Arts, Science, and Law have forged a unique approach to the study of environment through the inter-faculty, trans-disciplinary McGill School of Environment (MSE).

The growth of technology, globalizing economies, and rapid increase in population have had dramatic and significant environmental impacts. These changes have been accompanied by an increasing awareness of the relationship between human activity and the environment. Environmental problems range from local and short-term degradation through to the perturbation observed over the entire globe and for many years. The importance of human-environment relations for environmental and social well-being, and the complexity and conflict involved in environmental analysis and decision making, requires a depth and breadth of knowledge. The MSE has developed its programs with the approach of introducing students to a broad range of ideas early in the program to provide a foundation and an openness upon which more specialized, disciplinary knowledge can be built.

7.2 Mission of the School

The mission of the McGill School of Environment is:

- to provide a program that will develop a broad-based environmental literacy in the undergraduate population;
- to develop opportunities for graduate students to pursue studies of the environment at an advanced level to create future leaders and researchers; and
- to generate new ideas, new insights, new technologies, and new approaches to understanding and redressing environmental problems through academic research and outreach that draws on the University’s existing strength in research and spans disciplinary boundaries.

Through a range of research and educational initiatives, the MSE aims to aid society in making environmental choices, in the context of diverse environmental world views that will sustain healthy societies within a flourishing biosphere.

Focusing on six themes:

- Biodiversity, Ecosystem Function, and Services
- Climate and Energy
- Disease and Environment
- Environmental Ethics
- Food Security
- Water

7.3 Revisions – McGill School of Environment

Minor in Environment

section 7.8.1: Bachelor of Arts (B.A.) – Minor Concentration Environment (18 credits)
Minor in Environment

section 7.8.2: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) – Minor Environment (18 credits)

B.A. Faculty Program in Environment

section 7.9.1.1: Bachelor of Arts (B.A.) – Faculty Program Environment – Ecological Determinants of Health in Society (54 credits)

section 7.9.2.1: Bachelor of Arts (B.A.) – Faculty Program Environment – Economics and the Earth's Environment (54 credits)

Bachelor of Arts and Science (B.A. & Sc.) – Interfaculty Program in Environment

section 7.10.1: Bachelor of Arts and Science (B.A. & Sc.) – Interfaculty Program Environment (54 credits)

Major in Environment – B.Sc.(Ag.Env.Sc.) and B.Sc.

section 7.11.1.1: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) – Major Environment – Biodiversity and Conservation (63 credits)

section 7.11.2.1: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) – Major Environment - Ecological Determinants of Health – Cellular (63 credits)

section 7.11.2.2: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) – Major Environment – Ecological Determinants of Health – Population (63 credits)

section 7.11.4.1: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) – Major Environment – Food Production and Environment (63 credits)

section 7.11.6.1: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) – Major Environment – Renewable Resource Management (63 credits)

Major in Environment – B.Sc.

section 7.12.2.1: Bachelor of Science (B.Sc.) – Major Environment – Earth Sciences and Economics (66 credits)

section 7.14: Joint Honours Component Environment new

section 7.14.1: Bachelor of Arts (B.A.) - Joint Honours Component Environment (36 credits) new

Diploma in Environment

section 7.15.1: Diploma in Environment (30 credits)

7.4 About the School (Undergraduate)

The people and the programs of the McGill School of Environment are described in the following sections.

7.4.1 Location

For advising, contact:

Program Adviser, Ms. Kathy Roulet
Telephone: 514-398-4306
Fax: 514-398-1643
Email: kathy.roulet@mcgill.ca

Website: www.mcgill.ca/mse

Downtown Campus
3534 University Street
Montreal, Quebec H3A 2A7
Telephone: 514-398-2827
Fax: 514-398-1643
7.4.2 Administrative Officers

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chandra Madramootoo</td>
<td>Dean, Faculty of Agricultural and Environmental Sciences</td>
</tr>
<tr>
<td>Christopher Manfredi</td>
<td>Dean, Faculty of Arts</td>
</tr>
<tr>
<td>Daniel Jutras</td>
<td>Dean, Faculty of Law</td>
</tr>
<tr>
<td>Martin Grant</td>
<td>Dean, Faculty of Science</td>
</tr>
<tr>
<td>Marilyn Scott</td>
<td>Director</td>
</tr>
<tr>
<td>George McCourt</td>
<td>Associate Director, Undergraduate Affairs</td>
</tr>
<tr>
<td>Anthony Ricciardi</td>
<td>Associate Director, Research</td>
</tr>
<tr>
<td>Kathryn Roulet</td>
<td>Program Adviser</td>
</tr>
</tbody>
</table>

7.4.3 Academic Staff

<table>
<thead>
<tr>
<th>Title</th>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professors</td>
<td>Peter G. Brown</td>
<td>(joint appt. with Geography and Natural Resource Sciences)</td>
</tr>
<tr>
<td></td>
<td>Colin Chapman</td>
<td>(joint appt. with Anthropology)</td>
</tr>
<tr>
<td>Associate Professors</td>
<td>Madhav Badami</td>
<td>(joint appt. with School of Urban Planning)</td>
</tr>
<tr>
<td></td>
<td>Sylvie de Blois</td>
<td>(joint appt. with Plant Science)</td>
</tr>
<tr>
<td></td>
<td>Jaye Ellis</td>
<td>(joint appt. with Law)</td>
</tr>
<tr>
<td></td>
<td>Frédéric Fabry</td>
<td>(joint appt. with Atmospheric and Oceanic Sciences)</td>
</tr>
<tr>
<td>Assistant Professors</td>
<td>Brian Leung</td>
<td>(joint appt. with Biology)</td>
</tr>
<tr>
<td></td>
<td>Gregory Mikkelson</td>
<td>(joint appt. with Philosophy)</td>
</tr>
<tr>
<td></td>
<td>Anthony Ricciardi</td>
<td>(joint appt. with Redpath Museum)</td>
</tr>
<tr>
<td></td>
<td>Raja Sengupta</td>
<td>(joint appt. with Geography)</td>
</tr>
<tr>
<td></td>
<td>Renée Sieber</td>
<td>(joint appt. with Geography)</td>
</tr>
<tr>
<td>Faculty Lecturers</td>
<td>George McCourt</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Joan Marshall</td>
<td></td>
</tr>
</tbody>
</table>
### Faculty Lecturers
Kathryn Roulet; B.Sc.(Trent), M.Sc.(Guelph)

### Associate Members
Animal Science: Sarah Kimmins  
Anthropology: Andre Costopoulos, John Galaty  
Atmospheric and Oceanic Sciences: Parisa Ariya  
Biology: Lauren Chapman, Andrew Gonzalez, Irene Gregory-Eaves, Martin Lechowicz, Catherine Potvin, Michel Loreau  
Bioresource Engineering: Jan Adamowski, Suzelle Barrington, Grant Clark, Chandra Madramootoo  
Chemical Engineering: Nathalie Tufenkji, Viviane Yargeau  
Civil Engineering and Applied Mechanics: Susan Gaskin, Van-Thanh-Van Nguyen, Jim Nicell  
Earth and Planetary Sciences: Jeanne Paquette  
Economics: Robert Cairns, Chris Green, Tom Naylor  
Electrical and Computer Engineering: Geza Joos  
Epidemiology and Biostatistics: Mark Goldberg  
Geography: Gail Chmura, Oliver Coomes, Thom Meredith, Tim Moore, Wayne H. Pollard, Navin Ramankutty, Nigel Roulet  
Law, Faculty of: Jane Glenn, Richard Janda  
Management, Desautels Faculty of: Dror Etzion, Steve Maguire, Vedat Verter  
Parasitology, Institute of: Marilyn Scott  
Pathology: Bruce Case  
Philosophy: Philip Buckley  
Plant Science: Caroline Begg, Pierre Dutilleul, Don Smith, Marcia Waterway  
Political Science: Philip Oxhorn  
Redpath Museum: David M. Green, Claire Seizilles de Mazancourt  
Urban Planning, School of: Nik Luka

### Adjunct Professors
Holly Dressel; B.A.(Ind.), M.A.(S. Fraser)  
Nicholas Ogden; B.V.Sc.(Liv.), D.Phil.(Oxf.)  
Jessica Rothman; B.Sc., M.Sc., Ph.D. (C'nell)

## 7.5 Admission, Registration, and Regulations
Information concerning admission to the McGill School of Environment and the regulations concerning the Environment programs is provided in these sections:

- **section 7.5.1: Admission**
- **section 7.5.2: Degree Requirements**
- **section 7.5.3: Advising in the MSE**
- **section 7.5.4: Important Information about Program Selection**
- **section 7.5.5: Course Numbering System at McGill**
- **section 7.5.6: Examination Regulations**
section 7.5.7: Courses Outside the Student’s Faculty

7.5.1 Admission

You may be admitted to a B.A., B.A.&Sc., B.Sc.(Ag.Env.Sc.), or B.Sc. program offered by the MSE on the University’s two campuses: the Macdonald campus (B.Sc.(Ag.Env.Sc.) program) and the Downtown campus (B.A., B.A.&Sc., and B.Sc. programs). You register as a student within your faculty of admission and are governed by all rules and regulations of your faculty.

If you have already completed a Bachelor or an equivalent degree, you may be admitted to the Diploma in Environment through the Faculty of Agricultural and Environmental Sciences, the Faculty of Arts, or the Faculty of Science. You register as a student within your faculty of admission and are governed by all rules and regulations of your faculty relative to the Diploma.

Please see the Undergraduate Admissions Guide, found at www.mcgill.ca/applying.

7.5.2 Degree Requirements

To be eligible for a B.A. degree, you must fulfill all the faculty and program requirements as indicated in Faculty of Arts > Faculty of Arts Degrees.

To be eligible for a B.A. & Sc. degree, you must fulfill all the faculty and program requirements as indicated in Bachelor of Arts and Science > Degree Requirements.

To be eligible for a B.Sc.(Ag.Env.Sc.) degree, you must fulfill all the faculty and program requirements as indicated in Faculty of Agricultural and Environmental Sciences > Degree Requirements.

To be eligible for a B.Sc. degree, you must fulfill all the faculty and program requirements as indicated in Faculty of Science > Faculty Degree Requirements.

To be eligible for the Diploma in Environment, you must fulfill all program requirements as specified in Diploma in Environment.

To be eligible for an Honours degree, you must fulfill all the faculty and program requirements as indicated in the Honours and First Class Honours section under your home faculty. In addition, you must also fulfill the honours program requirements outlined in Honours Program in Environment.

7.5.3 Advising in the MSE

Each domain in the MSE has its own mentor who is available to answer your questions and offer you guidance about working and learning within the particular field of the domain. However, if you have questions about program requirements or rules, transfer credits, study abroad programs, course substitutions, or any forms that need to be signed, you should contact the MSE Program Adviser, Kathy Roulet, at kathy.roulet@mcgill.ca.

7.5.4 Important Information about Program Selection

The MSE uses students’ program selections to identify which students are in the School’s major programs (and, by extension, which students are in the McGill Environment Students’ Society).

While in U1, if you are unsure of the domain that you want to pursue, you may register in the Major or Faculty program in Environment without picking a domain. However, you must pick a domain by your U2 year.

Note: You must select a domain in order to graduate; you cannot graduate without choosing a domain.

(This section does not apply to students in the B.A.&Sc., Minor or Diploma programs.)

7.5.5 Course Numbering System at McGill

The first four characters of a McGill course number refer to the unit offering the course. For example, MSE courses begin with the Subject Code ENVR.

The three numbers following the Subject Code refer to the course itself, with 200-level courses usually taken by U1 students, 300-level by U2 students, and 400-level by U3 students. As a senior undergraduate student, you can also take some 500-level courses, but you should limit yourself to no more than one per term. See Course Information, Regulations and Descriptions in this publication for more information.

7.5.6 Examination Regulations

Regulations concerning the method of evaluation of any course (including those governing supplemental examinations) are those of the faculty that offers the course. You should note that supplemental exams are available for courses taught in the Faculties of Arts, of Science, and of Education, but not for courses taught in the Faculties of Agricultural and Environmental Sciences, Engineering, or Management.

Note: All ENVR courses, regardless of where they are taught, are offered only by the Faculty of Science.

See University Regulations and Resources > Examinations for more information on the University regulations and procedures.
7.5.7 Courses Outside the Student's Faculty

Students in the School's B.A., B.A. & Sc., B.Sc., and B.Sc.(Ag.Env.Sc.) programs may take courses outside their faculty according to the regulations of their faculty of admission.

These regulations are not identical:

- Arts students, see Faculty of Arts > Courses Outside the Faculties of Arts and Science.
- Arts and Science students, see Bachelor of Arts and Science > Courses Outside the Faculties of Arts and Science.
- Science students, see Faculty of Science > Courses Outside the Faculties of Arts and Science.
- Agricultural and Environmental Sciences students, see Faculty of Agricultural and Environmental Sciences > Minimum Credit Requirement.
- Faculty of Science students in particular should be aware that some courses are restricted and cannot be taken for credit. See the Science Office for Undergraduate Student Advising (SOU SA) website at www.mcgill.ca/science/sousa. Check under Bachelor of Science degree > General course requirements > Restricted courses outside the Faculty of Science > Policy concerning courses outside Faculty of Science.
- Students in the Diploma of Environment follow the program as specified; see section 7.15: Diploma in Environment.

7.6 Overview of Programs Offered

The McGill School of Environment has developed eight programs, which are offered on the Downtown and Macdonald campuses:

1. A Minor in Environment is open to all undergraduate students. For more information, see section 7.8: Minor in Environment.
2. A Faculty Program in Environment leading to a B.A. is open to students meeting the entrance requirements of the Faculty of Arts. For more information, see section 7.9: B.A. Faculty Program in Environment.
3. An Interfaculty Program in Environment leading to a B.A. & Sc. is open to students meeting the entrance requirements for the Bachelor of Arts and Science. For more information, see section 7.10: Bachelor of Arts and Science (B.A. & Sc.) – Interfaculty Program in Environment.
4. An Interfaculty Program in Sustainability, Science and Society leading to a B.A. & Sc. is offered by the McGill School of Environment in partnership with the Department of Geography. It is open to students meeting the entrance requirements for the Bachelor of Arts and Science. For more information, see Bachelor of Arts and Science > Bachelor of Arts and Science (B.A. & Sc.) - Interfaculty Program in Sustainability, Science and Society (54 credits).
5. A Major in Environment leading to a B.Sc.(Ag.Env.Sc.) is open to students meeting the entrance requirements of the Faculty of Agricultural and Environmental Sciences. For more information, see section 7.11: Major in Environment – B.Sc.(Ag.Env.Sc.) and B.Sc.
6. A Major in Environment leading to a B.Sc. is open to students meeting the entrance requirements of the Faculty of Science. For more information, see section 7.11: Major in Environment – B.Sc.(Ag.Env.Sc.) and B.Sc.
7. An Honours Program in Environment is open to senior Environment students in the B.A., B.A. & Sc., B.Sc.(Ag.Env.Sc.) and B.Sc. degrees. For more information, see section 7.13: Honours Program in Environment.
8. A Diploma in Environment is available only to students who have already completed a Bachelor or an equivalent degree, and who want to return to university for further undergraduate study. The Diploma is offered by the Faculty of Agricultural and Environmental Sciences, the Faculty of Arts, and the Faculty of Science. For more information, see section 7.15: Diploma in Environment.

These programs strive to offer the flexibility necessary to deal with the environment through a set of core courses that provide the general knowledge base of the program combined with a progressive series of courses in a trans-disciplinary area of environmental specialization, referred to as a domain. The programs are designed to prepare students for further study in environment or discipline-based graduate programs, and for employment in industry, government, and education.

7.7 Suggested Courses for Freshmen Students

The MSE does not recommend that students in their Freshman (U0) year take the ENVR Core courses. Students in their U1 to U3 years are welcome to take selected ENVRS courses, even if they are not in the Environment programs. For Freshman year course selections, students should refer to the website of their respective faculty.

Students in the B.Sc. degree, see www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/requirements.
Students in the B.Sc.(Ag.Env.Sc.) degree, see www.mcgill.ca/macdonald/prospective/freshmanyear/courses.
Students in the B.A. & Sc. degree, see www.mcgill.ca/science/sousa/new_students/u0/basc_freshman/requirements.
Students in the B.A. degree, see www.mcgill.ca/oasis/ba/freshman/selection.
7.8 **Minor in Environment**

The Minor in Environment is intended to complement an expertise obtained through a major, major concentration, or Faculty program offered by an academic unit other than the MSE. Students taking the Minor in Environment are exposed to different approaches, perspectives, and world views that will help them gain an understanding of the complexity and conflicts that underlie environmental problems.

Students, after consulting with their adviser in their major program or concentration and the MSE Program Adviser, can declare their intention to do a Minor in Environment.

To obtain a Minor in Environment, students must:

- register for the Minor online, using Minerva;
- submit their program of courses already taken and to be taken for the Minor in Environment to the MSE Program Adviser for approval (only courses at the 200 level and above will be approved);
- pass all courses counted toward the Minor with a grade of C or higher;
- complete 18 credits from the courses listed under section 7.8.1: Bachelor of Arts (B.A.) – Minor Concentration Environment (18 credits) or section 7.8.2: Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) – Minor Environment (18 credits) in this publication and which are not otherwise counted towards the student's major program or concentration or a second minor program; and
- ensure that all 18 credits are taken outside the discipline or field of the student's major program or concentration.

7.8.1 **Bachelor of Arts (B.A.) – Minor Concentration Environment (18 credits)**

**Revision, August 2011. Start of revision.**

This 18-credit Minor Concentration Environment is intended for Arts students in the multi-track system and Law students.

**Advising Note:**

Consultation with the Program Adviser for approval of course selection to meet program requirements is obligatory. Only courses at the 200 level and above will be approved.

For more information, contact:

Ms. Kathy Roulet, MSE Program Adviser

Email: kathy.roulet@mcgill.ca

Telephone: 514-398-4306

**Complementary Courses (18 credits)**

18 credits of complementary courses are selected as follows:

12 credits of MSE core courses:

**Location Note:** Core courses are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ENVR 200</td>
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<tr>
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</tbody>
</table>

6 credits of environmentally related courses selected with the approval of the Program Adviser (at least 3 credits must be in natural sciences). A list of Suggested Courses is given below.

**Suggested Course List**

The Suggested Course List is divided into two thematic categories: Social Sciences and Policy; and Natural Sciences and Technology.

Most courses listed at the 300 level and higher have prerequisites. You are urged to prepare your program of study with this in mind.

This list is not meant to be exhaustive. You are also encouraged to examine the course lists of the various domains in the Environment program for other courses that might interest you. Courses not on the Suggested Course List may be included in the Minor with the permission of the Program Adviser.
Location Note:
When planning your schedule and registering for courses, you should verify where each course is offered because courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

Social Sciences and Policy
* Note: If WILD 415 is taken, 1 additional credit of complementary courses must be taken.

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**Natural Sciences and Technology**

**Note:** you may take MIMM 211 or LSCI 230, but not both; you may take ENVB 315 or BIOL 432, but not both; you may take BIOL 308 or ENVB 305, but not both.

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<td>BIOL 465</td>
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<td>BREE 322</td>
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<td>Meteorology</td>
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<td>Population &amp; Community Ecology</td>
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<td>GEOG 272</td>
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<td>MICR 331</td>
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<td>Microbial Ecology</td>
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### Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) – Minor Environment (18 credits)

**Revision, August 2011. Start of revision.**

This 18-credit Minor is intended for Faculty of Agricultural and Environmental Science students and Faculty of Science students, but is open to students from other faculties as well, except Arts and Law.

**Advising Note:**
Consultation with the Program Adviser for approval of course selection to meet program requirements is obligatory. Only courses at the 200 level and above will be approved.

For information about the Minor in Environment, contact:
Ms. Kathy Roulet, MSE Program Adviser
Email: kathy.roulet@mcgill.ca
Telephone: 514-398-4306

**Complementary Courses (18 credits)**

18 credits of complementary courses are selected as follows:

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12 credits of MSE core courses:

Location Note: MSE core courses are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.
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**Suggested Course List**

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This list is not meant to be exhaustive. You are also encouraged to examine the course lists of the various domains in the Environment program for other courses that might interest you. Courses not on the Suggested Course list may be included in the Minor with the permission of the MSE Program Adviser.

Location Note: When planning your schedule and registering for courses, you should verify where each course is offered because courses for this program are taught at both McGill’s Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

**Social Sciences and Policy**

* Note: If WILD 415 is taken, 1 additional credit of complementary courses must be taken.

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<td>GEOG 551</td>
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**Natural Sciences and Technology**

* Note: you may take LSCI 230 or MIMM 211, but not both; you may take BIOL 432 or ENVB 315, but not both; you may take BREE 217 or GEOG 322, but not both; you may take ENVB 430 or GEOG 201, but not both; you may take BIOL 308 or ENVB 305, but not both.

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Revision, August 2011. End of revision.

7.9 B.A. Faculty Program in Environment

The B.A. Faculty Program has two components: Core and Domain. Students follow three steps in their degree program.

1. **Core:** The Core consists of four introductory courses and one intermediate-level course where students are exposed to the different approaches, perspectives, and world views that will help them gain an understanding of the complexity and conflicts that underlie most environmental problems. Through the core program, students go beyond the confines of their individual views of environment.

2. **Domain:** Domains provide a trans-disciplinary study of a particular theme or component of the environment. You can choose to follow one of three domains within the B.A. Faculty Program in Environment:
   - Ecological Determinants of Health in Society
   - Economics and the Earth's Environment
   - Environment and Development

3. **Senior Core and Research:** In the two senior courses of the core, students will apply the general and specialized knowledge that they have gained in the program to the analysis of some specific, contemporary environmental problems.
To obtain a B.A. Faculty Program in Environment, students must:

- register in a domain online, using Minerva;
- satisfy the co- and/or prerequisites for the program (Calculus and a Basic Science course);
- pass all courses counted towards the Faculty Program with a grade of C or higher;
- confirm that their course selection satisfies the required components of the MSE core and their chosen domain, and that the complementary courses are approved courses in their chosen domain; and
- fulfil all Faculty requirements as specified for the B.A. in the Arts, see Faculty of Arts > Faculty of Arts Degree Requirements, which include meeting the minimum credit requirement as specified in their letter of admission.

7.9.1 Ecological Determinants of Health in Society Domain

This domain is open only to students in the B.A. Faculty Program in Environment.

<table>
<thead>
<tr>
<th>Adviser</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Kathy Roulet</td>
<td>Professor Marilyn Scott</td>
</tr>
<tr>
<td>Email: <a href="mailto:kathy.roulet@mcgill.ca">kathy.roulet@mcgill.ca</a></td>
<td>Email: <a href="mailto:marilyn.scott@mcgill.ca">marilyn.scott@mcgill.ca</a></td>
</tr>
<tr>
<td>Telephone: 514-398-4306</td>
<td>Telephone: 514-398-7996</td>
</tr>
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</table>

7.9.1.1 Bachelor of Arts (B.A.) – Faculty Program Environment – Ecological Determinants of Health in Society (54 credits)

Revision, August 2011. Start of revision.

An understanding of the interface between human health and environment depends not only on an appreciation of the biological and ecological determinants of health, but equally on an appreciation of the role of social sciences in the design, implementation, and monitoring of interventions. Demographic patterns and urbanization, economic forces, ethics, indigenous knowledge and culture, and an understanding of how social change can be effected are all critical if we are to be successful in our efforts to assure health of individuals and societies in the future. Recognizing the key role that nutritional status plays in maintaining a healthy body, and the increasing importance of infection as a health risk linked intimately with the environment, this domain prepares students to contribute to the solution of problems of nutrition and infection by tying the relevant natural sciences to the social sciences.

Program Prerequisites or Corequisites

All B.A. Environment students MUST take these pre- or corequisite courses, or their equivalents. These courses should be taken in the Freshman year if possible. Quebec students can take them in U1.

Calculus

3 credits of calculus from the following, or equivalent (e.g., CEGEP objective 00UN):

- MATH 139 (4) Calculus 1 with Precalculus
- MATH 140 (3) Calculus 1

Basic Science

3 credits of basic science from the following, or equivalent (e.g., CEGEP objective 00UK):

- AEBI 120 (3) General Biology
- BIOL 111 (3) Principles: Organismal Biology

Suggested First Year (U1) Courses

For suggestions on courses to take in your first year (U1), you can consult the "MSE Student Handbook 2011-2012" available on the MSE website (http://www.mcgill.ca/mse), or contact Kathy Roulet, the Program Adviser (kathy.roulet@mcgill.ca).

Program Requirements

Note: Students are required to take a maximum of 30 credits at the 200 level and a minimum of 12 credits at the 400 level or higher in this program. This includes core and required courses, but does not include the program prerequisites or corequisites listed above.

Location Note: When planning their schedule and registering for courses, students should verify where each course is offered because courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.
Core: Required Courses (18 credits)
Location Note: Core required courses are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.

ENVR 200 (3) The Global Environment
ENVR 201 (3) Society, Environment and Sustainability
ENVR 202 (3) The Evolving Earth
ENVR 203 (3) Knowledge, Ethics and Environment
ENVR 301 (3) Environmental Research Design
ENVR 400 (3) Environmental Thought

Core: Complementary Course - Senior Research Project (3 credits)
Only 3 credits will be applied to the program; extra credits will count as electives.

AGRI 519 (6) Sustainable Development Plans
ENVR 401 (3) Environmental Research
ENVR 451 (6) Research in Panama

Complementary Courses (33 credits)
33 credits of complementary courses are chosen as follows:
18 credits of Fundamentals, maximum 3 credits from any one category
9 credits from List A
6 credits from List B

Fundamentals:
18 credits of Fundamentals (3 credits from each category):

Health and Environment
GEOG 221 (3) Environment and Health
NRSC 221 (3) Environment and Health

Health and Infection
GEOG 403 (3) Global Health and Environmental Change
PARA 410 (3) Environment and Infection

Health and Pollution
ANTH 227 (3) Medical Anthropology
NRSC 333 (3) Pollution and Bioremediation

Economics
AGEC 200 (3) Principles of Microeconomics
ECON 208 (3) Microeconomic Analysis and Applications

Nutrition
Statistics
One of the following Statistics courses or equivalent:
Note: Credit given for Statistics courses is subject to certain restrictions. Students should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Arts.

AEMA 310 (3) Statistical Methods 1
MATH 203 (3) Principles of Statistics 1
SOCI 350 (3) Statistics in Social Research

List A:
9 credits from List A (maximum 3 credits from any one category):

Health and Society
GEOG 303 (3) Health Geography
SOCI 234 (3) Population and Society
SOCI 309 (3) Health and Illness

Hydrology and Climate
BREE 217 (3) Hydrology and Water Resources
GEOG 321 (3) Climatic Environments
GEOG 322 (3) Environmental Hydrology
NRSC 510 (3) Agricultural Micrometeorology

Agriculture
AGRI 210 (3) Agro-Ecological History
AGRI 340 (3) Principles of Ecological Agriculture
AGRI 411 (3) Global Issues on Development, Food and Agriculture

Decision Making
AGEC 242 (3) Management Theories and Practices
BTEC 502 (3) Biotechnology Ethics and Society
ECON 440 (3) Health Economics
PHIL 343 (3) Biomedical Ethics
URBP 520 (3) Globalization: Planning and Change

Biology Fundamentals:
* You may take BIOL 308 or ENVB 305, but not both.
AEBI 210 (3) Organisms 1
AEBI 211 (3) Organisms 2
BIOL 200 (3) Molecular Biology
BIOL 205 (3) Biology of Organisms
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**Development and Ecology**

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<td>SOCI 254</td>
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**List B:**

6 credits from List B (maximum 3 credits from any one category):

**Advanced Ecology**

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<td>BIOL 553</td>
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**Pest Management**

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<td>ENTO 352</td>
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<td>Biocontrol of Pest Insects</td>
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**Techniques and Management**

* You may take ENVB 430 or GEOG 201, but not both.

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**Social Change**

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**Immunology and Infectious Disease**

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Populations and Place
CANS 407 (3) Regions of Canada
GEOG 498 (3) Humans in Tropical Environments
PSYC 533 (3) International Health Psychology
SOCI 520 (3) Migration and Immigrant Groups
SOCI 550 (3) Developing Societies
SOCI 565 (3) Social Change in Panama

Revision, August 2011. End of revision.

7.9.2 Economics and the Earth’s Environment Domain
This domain is open only to students in the B.A. Faculty Program in Environment.

<table>
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<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Kathy Roulet</td>
<td>Professor Jeanne Paquette</td>
</tr>
<tr>
<td>Email: <a href="mailto:kathy.roulet@mcgill.ca">kathy.roulet@mcgill.ca</a></td>
<td>Email: <a href="mailto:jeanne.paquette@mcgill.ca">jeanne.paquette@mcgill.ca</a></td>
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<tr>
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<td>Telephone: 514-398-4402</td>
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</table>

7.9.2.1 Bachelor of Arts (B.A.) – Faculty Program Environment – Economics and the Earth’s Environment (54 credits)
Revision, August 2011. Start of revision.

Understanding Earth's geologic processes provides us with the knowledge to mitigate many of our society's environmental impacts due to resource extraction and waste disposal. This knowledge is not always enough, as economics often plays a controlling role in how we use and abuse our environment.

This domain educates students in the fundamentals of economics and Earth sciences. The fundamentals of economics are provided, as is their application to the effects of economic choices on Earth's environment. Examples of these applications include the economic effects of public policy toward resource industries and methods of waste disposal, and the potential effects of global warming on the global economy. Students also learn of minerals, rocks, soils, and waters that define much of Earth’s environment and how these materials interact with each other and with the atmosphere. Courses in specific subdisciplines of Earth sciences combined with courses presenting a global vision of how the Earth and its environment operate provide the student with the necessary knowledge of geologic processes. Examples of this knowledge include the effects of mineral and energy extraction on the environment and how industrial waste interacts with solids and liquids in the environment. The Earth science and economics studies merge in the final year when the students apply what they have learned in the domain to current environmental issues.

Program Prerequisites or Corequisites
All B.A. Environment students must take these courses, or their equivalents. These courses should be taken in the Freshman year if possible. Quebec students can take them in U1.

Calculus
3 credits of Calculus, one of the following, or equivalent (e.g., CEGEP objective OOUN):
- MATH 139 (4) Calculus 1 with Precalculus
- MATH 140 (3) Calculus 1

Basic Science
3 credits of Basic Science, one of the following, or their equivalents (e.g., CEGEP objectives Biology OOUK, Chemistry OOUL, Physics OOUR):
- BIOL 111 (3) Principles: Organismal Biology
- CHEM 110 (4) General Chemistry 1
- PHYS 101 (4) Introductory Physics - Mechanics

Other Suggested First Year (U1) Courses
For suggestions on courses to take in your first year (U1), you can consult the "MSE Student Handbook 2011-2012" available on the MSE website (http://www.mcgill.ca/mse), or contact Ms. Kathy Roulet, the Program Adviser (kathy.roulet@mcgill.ca).

Program Requirements

Note: Students are required to take a maximum of 34 credits at the 200 level and a minimum of 12 credits at the 400 level or higher in this program. This includes core and required courses, but does not include the domain prerequisites or corequisites listed above.

Location Note: When planning your schedule and registering for courses, you should verify where each course is offered because courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

Core: Required Courses (18 credits)

Location Note: Core required courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVR 200</td>
<td>The Global Environment</td>
<td>3</td>
</tr>
<tr>
<td>ENVR 201</td>
<td>Society, Environment and Sustainability</td>
<td>3</td>
</tr>
<tr>
<td>ENVR 202</td>
<td>The Evolving Earth</td>
<td>3</td>
</tr>
<tr>
<td>ENVR 203</td>
<td>Knowledge, Ethics and Environment</td>
<td>3</td>
</tr>
<tr>
<td>ENVR 301</td>
<td>Environmental Research Design</td>
<td>3</td>
</tr>
<tr>
<td>ENVR 400</td>
<td>Environmental Thought</td>
<td>3</td>
</tr>
</tbody>
</table>

Core: Complementary Course – Senior Research Project (3 credits)

Only 3 credits will be applied to the program: extra credits will count as electives.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 519</td>
<td>Sustainable Development Plans</td>
<td>6</td>
</tr>
<tr>
<td>ENVR 401</td>
<td>Environmental Research</td>
<td>3</td>
</tr>
<tr>
<td>ENVR 451</td>
<td>Research in Panama</td>
<td>6</td>
</tr>
</tbody>
</table>

Domain: Required Courses (15 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 230D1</td>
<td>Microeconomic Theory</td>
<td>3</td>
</tr>
<tr>
<td>ECON 230D2</td>
<td>Microeconomic Theory</td>
<td>3</td>
</tr>
<tr>
<td>ECON 405</td>
<td>Natural Resource Economics</td>
<td>3</td>
</tr>
<tr>
<td>EPSC 210</td>
<td>Introductory Mineralogy</td>
<td>3</td>
</tr>
<tr>
<td>EPSC 212</td>
<td>Introductory Petrology</td>
<td>3</td>
</tr>
</tbody>
</table>

Domain: Complementary Courses (18 credits)

18 credits are selected from various domains as follows:

Statistics

One of the following Statistics courses or equivalent:

Note: Credit given for Statistics courses is subject to certain restrictions. Students should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Arts.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEMA 310</td>
<td>Statistical Methods 1</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 202</td>
<td>Statistics and Spatial Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MATH 203</td>
<td>Principles of Statistics 1</td>
<td>3</td>
</tr>
</tbody>
</table>

Economics

6 credits from:
AGEC 333  (3)  Resource Economics
ECON 326  (3)  Ecological Economics
ECON 347  (3)  Economics of Climate Change
ECON 416  (3)  Topics in Economic Development 2
ECON 525  (3)  Project Analysis

Advanced Courses
9 credits from:
* Note: If WILD 415 is taken, 1 additional credit of complementary courses must be taken.
AGRI 435  (3)  Soil and Water Quality Management
AGRI 452  (3)  Water Resources in Barbados
AGRI 550  (3)  Sustained Tropical Agriculture
ANTH 339  (3)  Ecological Anthropology
BIOL 305  (3)  Animal Diversity
BIOL 308  (3)  Ecological Dynamics
ECON 305  (3)  Industrial Organization
ECON 313  (3)  Economic Development 1
ECON 314  (3)  Economic Development 2
ECON 408  (3)  Public Sector Economics 1
ECON 409  (3)  Public Sector Economics 2
ECON 412  (3)  Topics in Economic Development 1
ENVB 305  (3)  Population & Community Ecology
ENVB 437  (3)  Assessing Environmental Impact
EPSC 455  (3)  Sedimentary Geology
EPSC 549  (3)  Hydrogeology
GEOG 302  (3)  Environmental Management 1
GEOG 322  (3)  Environmental Hydrology
GEOG 380  (3)  Adaptive Environmental Management
GEOG 404  (3)  Environmental Management 2
GEOG 498  (3)  Humans in Tropical Environments
SOIL 510  (3)  Environmental Soil Chemistry
URBP 520  (3)  Globalization: Planning and Change
WILD 415*  (2)  Conservation Law

Revision, August 2011. End of revision.

7.9.3  Environment and Development Domain
This domain is open only to students in the B.A. Faculty Program in Environment.

<table>
<thead>
<tr>
<th>Adviser</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Kathy Roulet</td>
<td>Prof. Gregory Mikkelson</td>
</tr>
<tr>
<td>Email: <a href="mailto:kathy.roulet@mcgill.ca">kathy.roulet@mcgill.ca</a></td>
<td>Email: <a href="mailto:gregory.mikkelson@mcgill.ca">gregory.mikkelson@mcgill.ca</a></td>
</tr>
<tr>
<td>Telephone: 514-398-4306</td>
<td>Telephone: 514-398-4583</td>
</tr>
</tbody>
</table>
7.9.3.1 Bachelor of Arts (B.A.) - Faculty Program Environment - Environment and Development (54 credits)

The quest for sustainable paths to economic development requires scholars and practitioners to transcend the boundaries of traditional disciplines. This domain offers students sufficient depth and breadth of study to acquire a strong grasp of current theories, concepts, and approaches to environment and development. It prepares them for graduate study in interdisciplinary programs (e.g., development studies or environmental studies) as well as in integrative social sciences (e.g., anthropology, geography, etc.).

Program Prerequisites or Corequisites

All B.A. Environment students must take these courses, or their equivalents. These courses should be taken in the Freshman year if possible. Quebec students can take them in U1.

Calculus

3 credits of calculus from the following, or equivalent (e.g., CEGEP objective OOUN):

- MATH 139 (4) Calculus 1 with Precalculus
- MATH 140 (3) Calculus 1

Basic Science

3 credits of basic science from the following, or equivalent (e.g., CEGEP objectives: Biology OOUK, Chemistry OOUL, Physics OOUR):

- BIOL 111 (3) Principles: Organismal Biology
- CHEM 110 (4) General Chemistry 1
- PHYS 101 (4) Introductory Physics - Mechanics

Suggested First Year (U1) Courses

For suggestions on courses to take in your first year (U1), you can consult the "MSE Student Handbook 2011-2012" available on the MSE website (http://www.mcgill.ca/mse), or contact Ms. Kathy Roulet, the Program Adviser (kathy.roulet@mcgill.ca).

Program Requirements

Note: Students are required to take a maximum of 30 credits at the 200 level and a minimum of 12 credits at the 400 level or higher in this program. This includes core and required courses.

Location Note: When planning their schedule and registering for courses, students should verify where each course is offered because courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

Core: Required Courses (18 credits)

Location Note: Core required courses are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.

- ENVR 200 (3) The Global Environment
- ENVR 201 (3) Society, Environment and Sustainability
- ENVR 202 (3) The Evolving Earth
- ENVR 203 (3) Knowledge, Ethics and Environment
- ENVR 301 (3) Environmental Research Design
- ENVR 400 (3) Environmental Thought

Core: Complementary Course - Senior Research Project (3 credits)

Only 3 credits will be applied to the program; extra credits will count as electives.

- AGRI 519 (6) Sustainable Development Plans
- ENVR 401 (3) Environmental Research
- ENVR 451 (6) Research in Panama
**Domain: Required Courses (12 credits)**

<table>
<thead>
<tr>
<th>Course</th>
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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>ANTH 339</td>
<td>3</td>
<td>Ecological Anthropology</td>
</tr>
<tr>
<td>ECON 313</td>
<td>3</td>
<td>Economic Development 1</td>
</tr>
<tr>
<td>ECON 314</td>
<td>3</td>
<td>Economic Development 2</td>
</tr>
<tr>
<td>GEOG 302</td>
<td>3</td>
<td>Environmental Management 1</td>
</tr>
</tbody>
</table>

**Domain: Complementary Courses (21 credits)**

21 credits of complementary courses are chosen from various domains as follows:

**Microeconomics**

One of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGEC 200</td>
<td>3</td>
<td>Principles of Microeconomics</td>
</tr>
<tr>
<td>ECON 208</td>
<td>3</td>
<td>Microeconomic Analysis and Applications</td>
</tr>
</tbody>
</table>

**Statistics**

3 credits, one of the following Statistics courses or equivalent:

Note: Credit given for Statistics courses is subject to certain restrictions. Students should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Arts.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEMA 310</td>
<td>3</td>
<td>Statistical Methods 1</td>
</tr>
<tr>
<td>GEOG 202</td>
<td>3</td>
<td>Statistics and Spatial Analysis</td>
</tr>
<tr>
<td>MATH 203</td>
<td>3</td>
<td>Principles of Statistics 1</td>
</tr>
<tr>
<td>PSYC 204</td>
<td>3</td>
<td>Introduction to Psychological Statistics</td>
</tr>
</tbody>
</table>

**Advanced Development Courses**

6 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGEC 442</td>
<td>3</td>
<td>Economics of International Agricultural Development</td>
</tr>
<tr>
<td>ANTH 418</td>
<td>3</td>
<td>Environment and Development</td>
</tr>
<tr>
<td>GEOG 408</td>
<td>3</td>
<td>Geography of Development</td>
</tr>
<tr>
<td>GEOG 410</td>
<td>3</td>
<td>Geography of Underdevelopment: Current Problems</td>
</tr>
</tbody>
</table>

**Natural Sciences**

3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 550</td>
<td>3</td>
<td>Sustained Tropical Agriculture</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>3</td>
<td>Ecological Dynamics</td>
</tr>
<tr>
<td>BIOL 465</td>
<td>3</td>
<td>Conservation Biology</td>
</tr>
<tr>
<td>BIOL 553</td>
<td>3</td>
<td>Neotropical Environments</td>
</tr>
<tr>
<td>ENVB 305</td>
<td>3</td>
<td>Population &amp; Community Ecology</td>
</tr>
<tr>
<td>GEOG 305</td>
<td>3</td>
<td>Soils and Environment</td>
</tr>
<tr>
<td>GEOG 322</td>
<td>3</td>
<td>Environmental Hydrology</td>
</tr>
<tr>
<td>NUTR 403</td>
<td>3</td>
<td>Nutrition in Society</td>
</tr>
<tr>
<td>NUTR 501</td>
<td>3</td>
<td>Nutrition in Developing Countries</td>
</tr>
<tr>
<td>PARA 410</td>
<td>3</td>
<td>Environment and Infection</td>
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</tbody>
</table>
### Social Sciences

6 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGEC 333</td>
<td>3</td>
<td>Resource Economics</td>
</tr>
<tr>
<td>AGEC 442</td>
<td>3</td>
<td>Economics of International Agricultural Development</td>
</tr>
<tr>
<td>AGRI 210</td>
<td>3</td>
<td>Agro-Ecological History</td>
</tr>
<tr>
<td>AGRI 452</td>
<td>3</td>
<td>Water Resources in Barbados</td>
</tr>
<tr>
<td>ANTH 439</td>
<td>3</td>
<td>Theories of Development</td>
</tr>
<tr>
<td>ANTH 445</td>
<td>3</td>
<td>Property and Land Tenure</td>
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<tr>
<td>CANS 407</td>
<td>3</td>
<td>Regions of Canada</td>
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<tr>
<td>ECON 326</td>
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<td>Ecological Economics</td>
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<tr>
<td>ECON 405</td>
<td>3</td>
<td>Natural Resource Economics</td>
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<tr>
<td>GEOG 201</td>
<td>3</td>
<td>Introductory Geo-Information Science</td>
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<td>GEOG 300</td>
<td>3</td>
<td>Human Ecology in Geography</td>
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<td>GEOG 311</td>
<td>3</td>
<td>Economic Geography</td>
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<td>GEOG 331</td>
<td>3</td>
<td>Urban Social Geography</td>
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<tr>
<td>GEOG 380</td>
<td>3</td>
<td>Adaptive Environmental Management</td>
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<tr>
<td>GEOG 404</td>
<td>3</td>
<td>Environmental Management 2</td>
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<tr>
<td>GEOG 408</td>
<td>3</td>
<td>Geography of Development</td>
</tr>
<tr>
<td>GEOG 416</td>
<td>3</td>
<td>Africa South of the Sahara</td>
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<tr>
<td>GEOG 496</td>
<td>3</td>
<td>Geographical Excursion</td>
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<tr>
<td>GEOG 498</td>
<td>3</td>
<td>Humans in Tropical Environments</td>
</tr>
<tr>
<td>GEOG 508</td>
<td>3</td>
<td>Resources, People and Power</td>
</tr>
<tr>
<td>GEOG 510</td>
<td>3</td>
<td>Humid Tropical Environments</td>
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<td>GEOG 551</td>
<td>3</td>
<td>Environmental Decisions</td>
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<td>MGPO 440</td>
<td>3</td>
<td>Strategies for Sustainability</td>
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<td>POLI 445</td>
<td>3</td>
<td>International Political Economy: Monetary Relations</td>
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<td>POLI 472</td>
<td>3</td>
<td>Developing Areas/Social Movements</td>
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<td>SOCI 565</td>
<td>3</td>
<td>Social Change in Panama</td>
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<tr>
<td>URBP 507</td>
<td>3</td>
<td>Planning and Infrastructure</td>
</tr>
<tr>
<td>URBP 520</td>
<td>3</td>
<td>Globalization: Planning and Change</td>
</tr>
</tbody>
</table>

### 7.10 Bachelor of Arts and Science (B.A. & Sc.) – Interfaculty Program in Environment

The Interfaculty Program in Environment is open only to students in the B.A. & Sc. degree.

#### Adviser

Ms. Kathy Roulet, MSE Program Adviser  
Email: kathy.roulet@mcgill.ca  
Telephone: 514-398-4306

To obtain a B.A. & Sc. Interfaculty Program in Environment, students must:

- register in the program online, using Minerva;
• satisfy the co-/prerequisites for the program;
• pass all courses counted toward the Interfaculty Program with a grade of C or higher;
• confirm that their course selection satisfies the required components of the program;
• fulfil all requirements specified for the B.A. & Sc. in Bachelor of Arts and Science > Degree Requirements, which include meeting the minimum credit requirement as specified in their letter of admission.

7.10.1 Bachelor of Arts and Science (B.A. & Sc.) – Interfaculty Program Environment (54 credits)

Revision, August 2011. Start of revision.

The growth of technology, globalization of economies, and rapid increases in population and per capita consumption have all had dramatic environmental impacts. The Interfaculty Program Environment for the Bachelor of Arts and Science is designed to provide students with a broad “Liberal Arts/Science” training. In combination with careful mentoring, this program offers a great degree of flexibility, allowing students to develop the skills and knowledge base required to face the myriad of environmental problems that currently need to be addressed.

Program Requirements

1. Students are required to take a maximum of 21 credits at the 200 level and a minimum of 12 credits at the 400 level or higher in this program. This includes Required courses.

2. Students must complete at least 30 credits in the Faculty of Arts and at least 30 in the Faculty of Science as part of their interfaculty program and their minor or minor concentration. ENVR courses are considered courses in both Arts and Science, and so the credits are split between the two faculties for the purpose of this regulation.

Location Note: When planning your schedule and registering for courses, you should verify where each course is offered because courses for this program are taught on both McGill’s Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

Required Courses (18 credits)

Location Note: Core required courses are taught at both McGill’s Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.

ENVR 200 (3) The Global Environment
ENVR 201 (3) Society, Environment and Sustainability
ENVR 202 (3) The Evolving Earth
ENVR 203 (3) Knowledge, Ethics and Environment
ENVR 301 (3) Environmental Research Design
ENVR 400 (3) Environmental Thought

Complementary Courses (36 credits)

36 credits of complementary courses are selected as follows:

3 credits - Senior Research Project
3 credits - Statistics
30 credits - chosen from amongst 12 Areas of focus

Senior Research Project

Only 3 credits will be applied to the program; extra credits will count as electives.

AGRI 519 (6) Sustainable Development Plans
ENVR 401 (3) Environmental Research
ENVR 451 (6) Research in Panama

Statistics:

One of:

AEMA 310 (3) Statistical Methods 1
BIOL 373 (3) Biometry
Areas:
30 credits from at least three of the following Areas. At least 6 credits must be at the 400 level or higher, selected either from these lists or in consultation with the Program Adviser.

Area 1: Population, Community, and Ecosystem Ecology
* Note: you may take BIOL 540 or ENVR 540, but not both; you may take BIOL 308 or ENVB 305, but not both.

- BIOL 308* (3) Ecological Dynamics
- BIOL 432 (3) Limnology
- BIOL 441 (3) Biological Oceanography
- BIOL 540* (3) Ecology of Species Invasions
- ENVB 305* (3) Population & Community Ecology
- ENVB 410 (3) Ecosystem Ecology
- ENVB 540* (3) Ecology of Species Invasions
- GEOG 350 (3) Ecological Biogeography
- PLNT 460 (3) Plant Ecology

Area 2: Biodiversity and Conservation

- BIOL 305 (3) Animal Diversity
- BIOL 341 (3) History of Life
- BIOL 355 (3) Trees: Ecology & Evolution
- BIOL 427 (3) Herpetology
- BIOL 465 (3) Conservation Biology
- ENTO 440 (3) Insect Diversity
- MICR 331 (3) Microbial Ecology
- PLNT 358 (3) Flowering Plant Diversity
- WILD 307 (3) Natural History of Vertebrates
- WILD 350 (3) Mammalogy
- WILD 420 (3) Ornithology

Area 3: Field Studies in Ecology and Conservation

- BIOL 240 (3) Monteregian Flora
- BIOL 331 (3) Ecology/Behaviour Field Course
- BIOL 334 (3) Applied Tropical Ecology
- BIOL 553 (3) Neotropical Environments
- GEOG 495 (3) Field Studies - Physical Geography
- GEOG 499 (3) Subarctic Field Studies
- WILD 475 (3) Desert Ecology

Area 4: Hydrology and Water Resources
**Area 5: Human Health**

* Note: you may take ANSC 330 or NUTR 307, but not both; you may take PHAR 303 or NUTR 420, but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 330*</td>
<td>3</td>
<td>Fundamentals of Nutrition</td>
</tr>
<tr>
<td>NUTR 307*</td>
<td>3</td>
<td>Human Nutrition</td>
</tr>
<tr>
<td>NUTR 420*</td>
<td>3</td>
<td>Toxicology and Health Risks</td>
</tr>
<tr>
<td>PARA 410</td>
<td>3</td>
<td>Environment and Infection</td>
</tr>
<tr>
<td>PATH 300</td>
<td>3</td>
<td>Human Disease</td>
</tr>
<tr>
<td>PHAR 303*</td>
<td>3</td>
<td>Principles of Toxicology</td>
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</tbody>
</table>

**Area 6: Earth and Soil Sciences**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATOC 215</td>
<td>3</td>
<td>Oceans, Weather and Climate</td>
</tr>
<tr>
<td>EPSC 201</td>
<td>3</td>
<td>Understanding Planet Earth</td>
</tr>
<tr>
<td>GEOG 272</td>
<td>3</td>
<td>Earth's Changing Surface</td>
</tr>
<tr>
<td>GEOG 305</td>
<td>3</td>
<td>Soils and Environment</td>
</tr>
<tr>
<td>GEOG 321</td>
<td>3</td>
<td>Climatic Environments</td>
</tr>
<tr>
<td>SOIL 326</td>
<td>3</td>
<td>Soils in a Changing Environment</td>
</tr>
</tbody>
</table>

**Area 7: Economics**

* Note: you may take AGEC 200 or ECON 208, but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>AGEC 200*</td>
<td>3</td>
<td>Principles of Microeconomics</td>
</tr>
<tr>
<td>AGEC 333</td>
<td>3</td>
<td>Resource Economics</td>
</tr>
<tr>
<td>ECON 208*</td>
<td>3</td>
<td>Microeconomic Analysis and Applications</td>
</tr>
<tr>
<td>ECON 326</td>
<td>3</td>
<td>Ecological Economics</td>
</tr>
<tr>
<td>ECON 347</td>
<td>3</td>
<td>Economics of Climate Change</td>
</tr>
<tr>
<td>ECON 405</td>
<td>3</td>
<td>Natural Resource Economics</td>
</tr>
<tr>
<td>GEOG 216</td>
<td>3</td>
<td>Geography of the World Economy</td>
</tr>
</tbody>
</table>

**Area 8: Development and Underdevelopment**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ANTH 212</td>
<td>3</td>
<td>Anthropology of Development</td>
</tr>
<tr>
<td>ANTH 418</td>
<td>3</td>
<td>Environment and Development</td>
</tr>
<tr>
<td>ECON 313</td>
<td>3</td>
<td>Economic Development 1</td>
</tr>
<tr>
<td>ECON 314</td>
<td>3</td>
<td>Economic Development 2</td>
</tr>
<tr>
<td>Course Code</td>
<td>Credits</td>
<td>Course Title</td>
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<tr>
<td>-------------</td>
<td>---------</td>
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</tr>
<tr>
<td>GEOG 408</td>
<td>3</td>
<td>Geography of Development</td>
</tr>
<tr>
<td>GEOG 410</td>
<td>3</td>
<td>Geography of Underdevelopment: Current Problems</td>
</tr>
<tr>
<td>POLI 227</td>
<td>3</td>
<td>Developing Areas/Introduction</td>
</tr>
<tr>
<td>POLI 445</td>
<td>3</td>
<td>International Political Economy: Monetary Relations</td>
</tr>
<tr>
<td>SWRK 374</td>
<td>3</td>
<td>Community Development/Social Action</td>
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**Area 9: Cultures and People**

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>ANTH 206</td>
<td>3</td>
<td>Environment and Culture</td>
</tr>
<tr>
<td>ANTH 339</td>
<td>3</td>
<td>Ecological Anthropology</td>
</tr>
<tr>
<td>GEOG 210</td>
<td>3</td>
<td>Global Places and Peoples</td>
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</table>

**Area 10: Human Ecology and Health**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ANTH 227</td>
<td>3</td>
<td>Medical Anthropology</td>
</tr>
<tr>
<td>GEOG 300</td>
<td>3</td>
<td>Human Ecology in Geography</td>
</tr>
<tr>
<td>GEOG 303</td>
<td>3</td>
<td>Health Geography</td>
</tr>
<tr>
<td>PHIL 343</td>
<td>3</td>
<td>Biomedical Ethics</td>
</tr>
<tr>
<td>SOCI 225</td>
<td>3</td>
<td>Medicine and Health in Modern Society</td>
</tr>
<tr>
<td>SOCI 309</td>
<td>3</td>
<td>Health and Illness</td>
</tr>
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</table>

**Area 11: Spirituality, Philosophy, and Thought**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EDER 461</td>
<td>3</td>
<td>Society and Change</td>
</tr>
<tr>
<td>PHIL 220</td>
<td>3</td>
<td>Introduction to History and Philosophy of Science 1</td>
</tr>
<tr>
<td>PHIL 221</td>
<td>3</td>
<td>Introduction to History and Philosophy of Science 2</td>
</tr>
<tr>
<td>PHIL 237</td>
<td>3</td>
<td>Contemporary Moral Issues</td>
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<tr>
<td>PHIL 341</td>
<td>3</td>
<td>Philosophy of Science 1</td>
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<tr>
<td>PHIL 348</td>
<td>3</td>
<td>Philosophy of Law 1</td>
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<tr>
<td>RELG 270</td>
<td>3</td>
<td>Religious Ethics and the Environment</td>
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<tr>
<td>RELG 340</td>
<td>3</td>
<td>Religion and the Sciences</td>
</tr>
<tr>
<td>RELG 370</td>
<td>3</td>
<td>Religion and Human Rights</td>
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**Area 12: Environmental Management**

*Note: If WILD 415 is taken, 1 additional credit of complementary courses must be taken.*

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>AGRI 210</td>
<td>3</td>
<td>Agro-Ecological History</td>
</tr>
<tr>
<td>AGRI 435</td>
<td>3</td>
<td>Soil and Water Quality Management</td>
</tr>
<tr>
<td>AGRI 452</td>
<td>3</td>
<td>Water Resources in Barbados</td>
</tr>
<tr>
<td>ENVB 437</td>
<td>3</td>
<td>Assessing Environmental Impact</td>
</tr>
<tr>
<td>GEOG 302</td>
<td>3</td>
<td>Environmental Management 1</td>
</tr>
<tr>
<td>GEOG 380</td>
<td>3</td>
<td>Adaptive Environmental Management</td>
</tr>
<tr>
<td>GEOG 404</td>
<td>3</td>
<td>Environmental Management 2</td>
</tr>
<tr>
<td>NRSC 333</td>
<td>3</td>
<td>Pollution and Bioremediation</td>
</tr>
<tr>
<td>NRSC 382</td>
<td>3</td>
<td>Ecological Monitoring and Analysis</td>
</tr>
<tr>
<td>NRSC 383</td>
<td>3</td>
<td>Land Use: Redesign and Planning</td>
</tr>
</tbody>
</table>
The Interfaculty Program in Sustainability, Science and Society is open only to students in the B.A. & Sc. degree.

Adviser: Prof. Navin Ramankutty
Email: navin.ramankutty@mcgill.ca
Telephone: 514-398-8428

For further information about this program, see Bachelor of Arts and Science > Bachelor of Arts and Science (B.A. & Sc.) - Interfaculty Program in Sustainability, Science and Society (54 credits).

Major in Environment – B.Sc.(Ag.Env.Sc.) and B.Sc.

Students in the Faculty of Agricultural and Environmental Sciences B.Sc.(Ag.Env.Sc.) program and students in the Faculty of Science B.Sc. program can register in the Major in Environment.

The Major has two components: core and domain. Students follow three steps in their degree program.

1. Core: The core consists of four introductory courses and one intermediate-level course where students are exposed to the different approaches, perspectives, and world views that will help them gain an understanding of the complexity and conflicts that underlie most environmental problems. Through the core program, students go beyond the confines of their individual views of environment.

2. Domain: Domains provide a trans-disciplinary study of a particular theme or component of the environment. B.Sc.(Ag.Env.Sc.) and B.Sc. students can choose to follow one of the following domains:
   - Biodiversity and Conservation
   - Ecological Determinants of Health (Population and Cellular stream options)
   - Environmetrics
   - Food Production and Environment
   - Land Surface Processes and Environmental Change
   - Renewable Resource Management
   - Water Environments and Ecosystems (Biological and Physical stream options)

B.Sc. students in the Faculty of Science can also choose from the following two domains:
   - Atmospheric Environment and Air Quality
   - Earth Sciences and Economics

3. Senior Core and Research: In the two senior courses of the core, students will apply the general and specialized knowledge that they have gained in the program to the analysis of some specific, contemporary environmental problems.

To obtain a Major in Environment, students must:

- register in a domain online using Minerva;
- pass all courses counted toward the Major with a grade of C or higher;
- confirm that their course selection satisfies the required components of the MSE core and their chosen domain, and that the complementary courses are approved courses in their chosen domain; and
- fulfill all faculty requirements as specified by the faculty in which they are registered: for the B.Sc.(Ag.Env.Sc.), refer to Faculty of Agricultural and Environmental Sciences > Faculty Information and Regulations; for the B.Sc., see Faculty of Science > Faculty Degree Requirements. This includes meeting the minimum credit requirement as specified in their letter of admission.

Biodiversity and Conservation Domain

This domain is open only to students in the B.Sc.(Ag.Env.Sc.) Major Environment or B.Sc. Major Environment program.
7.11.1.1 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) – Major Environment – Biodiversity and Conservation (63 credits)

Revision, August 2011. Start of revision.

This domain (63 credits including core) is open only to students in the B.Sc.(Ag.Env.Sc.) Major in Environment or B.Sc. Major in Environment program.

This domain links the academic study of biological diversity with the applied field of conservation biology. The study of biological diversity, or "biodiversity", lies at the intersection of evolution with ecology and genetics, combining the subdisciplines of evolutionary ecology, evolutionary genetics, and ecological genetics. It has two main branches: the creation of diversity and the maintenance of diversity. Both processes are governed by a general mechanism of selection acting over different scales of space and time. This gives rise to a distinctive set of principles and generalizations that regulate rates of diversification and levels of diversity, as well as the abundance or rarity of different species. Conservation biology constitutes the application of these principles in the relevant social and economic context to the management of natural systems, with the object of preventing the extinction of rare species and maintaining the diversity of communities. As the impact of industrialization and population growth on natural systems has become more severe, conservation has emerged as an important area of practical endeavour.

Suggested First Year (U1) Courses

For suggestions on courses to take in your first year (U1), you can consult the "MSE Student Handbook 2011-2012" available on the MSE website (http://www.mcgill.ca/mse), or contact Ms. Kathy Roulet, the Program Adviser (kathy.roulet@mcgill.ca).

Program Requirements

Note: Students are required to take a maximum of 30 credits at the 200 level and a minimum of 12 credits at the 400 level or higher in this program. This includes core and required courses.

Location Note: When planning their schedule and registering for courses, students should verify where each course is offered because courses for this program are taught at both McGill’s Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

Core: Required Courses (18 credits)

Location Note: Core required courses are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVR 200</td>
<td>3</td>
<td>The Global Environment</td>
</tr>
<tr>
<td>ENVR 201</td>
<td>3</td>
<td>Society, Environment and Sustainability</td>
</tr>
<tr>
<td>ENVR 202</td>
<td>3</td>
<td>The Evolving Earth</td>
</tr>
<tr>
<td>ENVR 203</td>
<td>3</td>
<td>Knowledge, Ethics and Environment</td>
</tr>
<tr>
<td>ENVR 301</td>
<td>3</td>
<td>Environmental Research Design</td>
</tr>
<tr>
<td>ENVR 400</td>
<td>3</td>
<td>Environmental Thought</td>
</tr>
</tbody>
</table>

Core: Complementary Course - Senior Research Project (3 credits)

Only 3 credits will be applied to the program; extra credits will count as electives.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 519</td>
<td>6</td>
<td>Sustainable Development Plans</td>
</tr>
<tr>
<td>ENVR 401</td>
<td>3</td>
<td>Environmental Research</td>
</tr>
<tr>
<td>ENVR 451</td>
<td>6</td>
<td>Research in Panama</td>
</tr>
</tbody>
</table>

Domain: Complementary Courses (42 credits)

42 credits of complementary courses are selected as follows:

- 9 credits - basic courses in the Biological Principles of Diversity, Systematics, and Conservation
- 3 credits - Ecology
3 credits - Statistics
9 credits - Interface between Science, Policy, and Management
3 credits - Field Courses
6 credits - General Scientific Principles
3 credits - Social Science
6 credits - Organisms and Diversity

**Biological Principles of Diversity/Systematics/Conservation:**
9 credits are chosen from basic courses in the biological principles of diversity, systematics, and conservation as follows:

One of:
- AEBI 212 (3) Evolution and Phylogeny
- BIOL 304 (3) Evolution

One of:
- AEBI 211 (3) Organisms 2
- BIOL 305 (3) Animal Diversity

One of:
- BIOL 465 (3) Conservation Biology
- WILD 421 (3) Wildlife Conservation

**Ecology:**
One of:
- BIOL 308 (3) Ecological Dynamics
- ENVB 305 (3) Population & Community Ecology

**Statistics:**
One of:
- AEMA 310 (3) Statistical Methods 1
- BIOL 373 (3) Biometry

**Science, Policy, and Management:**
9 credits are chosen from interface between science, policy, and management as follows:
* Note: you may take AGEC 200 or ECON 208, but not both.

- AGEC 200* (3) Principles of Microeconomics
- AGRI 550 (3) Sustained Tropical Agriculture
- ANTH 418 (3) Environment and Development
- ECON 208* (3) Microeconomic Analysis and Applications
- ECON 225 (3) Economics of the Environment
- GEOG 302 (3) Environmental Management 1
- GEOG 370 (3) Protected Areas
- GEOG 380 (3) Adaptive Environmental Management
GEOG 408  (3)  Geography of Development
GEOG 410  (3)  Geography of Underdevelopment: Current Problems

Field Courses
One of:
AGRI 452  (3)  Water Resources in Barbados
BIOL 331  (3)  Ecology/Behaviour Field Course
BIOL 334  (3)  Applied Tropical Ecology
BIOL 553  (3)  Neotropical Environments
GEOG 495  (3)  Field Studies - Physical Geography
GEOG 497  (3)  Ecology of Coastal Waters
GEOG 499  (3)  Subarctic Field Studies
WILD 475  (3)  Desert Ecology

General Scientific Principles
6 credits of general scientific principles selected from the following:
* Note: you may take ENVB 430 or GEOG 306, but not both.
(A second field course from the domain curriculum may also be taken.)
** Note: you may take BIOL 432 or ENVB 315, but not both.
BIOL 324  (3)  Ecological Genetics
BIOL 341  (3)  History of Life
BIOL 342  (3)  Marine Biology
BIOL 432**  (3)  Limnology
BIOL 441  (3)  Biological Oceanography
BIOL 505  (3)  Diversity and Systematics Seminar
ENVB 313  (3)  Phylogeny and Biogeography
ENVB 315**  (3)  Science of Inland Waters
ENVB 410  (3)  Ecosystem Ecology
ENVB 430*  (3)  GIS for Natural Resource Management
ENVB 437  (3)  Assessing Environmental Impact
GEOG 272  (3)  Earth's Changing Surface
GEOG 306*  (3)  Raster Geo-Information Science
GEOG 321  (3)  Climatic Environments
GEOG 322  (3)  Environmental Hydrology
GEOG 350  (3)  Ecological Biogeography
MICR 331  (3)  Microbial Ecology
PLNT 460  (3)  Plant Ecology
WILD 311  (3)  Ethology
WOOD 420  (3)  Environmental Issues: Forestry

Social Science:
One of:
* Note: If WILD 415 is taken, 1 additional credit of complementary courses must be taken.
Organisms and Diversity:
6 credits of organisms and diversity selected as follows:
* Note: you may take BIOL 350 or ENTO 350, but not both; you may take BIOL 540 or ENVR 540, but not both.

<table>
<thead>
<tr>
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<th>Credits</th>
<th>Title</th>
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<tbody>
<tr>
<td>AGRI 340</td>
<td>3</td>
<td>Principles of Ecological Agriculture</td>
</tr>
<tr>
<td>ANTH 311</td>
<td>3</td>
<td>Primate Behaviour and Ecology</td>
</tr>
<tr>
<td>BIOL 335</td>
<td>3</td>
<td>Marine Mammals</td>
</tr>
<tr>
<td>BIOL 350*</td>
<td>3</td>
<td>Insect Biology and Control</td>
</tr>
<tr>
<td>BIOL 355</td>
<td>3</td>
<td>Trees: Ecology &amp; Evolution</td>
</tr>
<tr>
<td>BIOL 427</td>
<td>3</td>
<td>Herpetology</td>
</tr>
<tr>
<td>BIOL 540*</td>
<td>3</td>
<td>Ecology of Species Invasions</td>
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<tr>
<td>ENTO 350*</td>
<td>3</td>
<td>Insect Biology and Control</td>
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<tr>
<td>ENTO 352</td>
<td>3</td>
<td>Biocontrol of Pest Insects</td>
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<tr>
<td>ENTO 440</td>
<td>3</td>
<td>Insect Diversity</td>
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<tr>
<td>ENVR 540*</td>
<td>3</td>
<td>Ecology of Species Invasions</td>
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<td>PLNT 304</td>
<td>3</td>
<td>Biology of Fungi</td>
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<tr>
<td>PLNT 358</td>
<td>3</td>
<td>Flowering Plant Diversity</td>
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<tr>
<td>WILD 307</td>
<td>3</td>
<td>Natural History of Vertebrates</td>
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<tr>
<td>WILD 350</td>
<td>3</td>
<td>Mammalogy</td>
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<td>WILD 420</td>
<td>3</td>
<td>Ornithology</td>
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<td>WILD 424</td>
<td>3</td>
<td>Parasitology</td>
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</table>

Revision, August 2011. End of revision.

7.11.2 Ecological Determinants of Health Domain

This domain is open only to students in the B.Sc.(Ag.Env.Sc.) Major Environment or B.Sc. Major Environment program.

<table>
<thead>
<tr>
<th>Adviser</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Kathy Roulet</td>
<td>Professor Marilyn Scott</td>
</tr>
<tr>
<td>Email: <a href="mailto:kathy.roulet@mcgill.ca">kathy.roulet@mcgill.ca</a></td>
<td>Email: <a href="mailto:marilyn.scott@mcgill.ca">marilyn.scott@mcgill.ca</a></td>
</tr>
<tr>
<td>Telephone: 514-398-4306</td>
<td>Telephone: 514-398-7996</td>
</tr>
</tbody>
</table>

7.11.2.1 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) – Major Environment - Ecological Determinants of Health – Cellular (63 credits)

Revision, August 2011. Start of revision.
The Cellular concentration in this domain is open only to students in the B.Sc.(Ag.Env.Sc.) Major Environment or B.Sc. Major Environment program. This domain considers the interface between the environment and human well-being, with particular focus on the triad that ties human health to the environment through the elements of food and infectious agents. Each of these elements is influenced by planned and unplanned environmental disturbances. For example, agricultural practices shift the balance between beneficial and harmful ingredients of food. Use of insecticides presents dilemmas with regard to the environment, economics, and human health. The distribution of infectious diseases is influenced by the climatic conditions that permit vectors to coexist with man, by deforestation, by urbanization, and by human interventions ranging from the building of dams to provision of potable water.

In designing interventions that aim to prevent or reduce infectious contaminants in the environment, or to improve food production and nutritional quality, not only is it important to understand methods of intervention, but also to understand social forces that influence how humans respond to such interventions. Students in the Cellular concentration will explore these interactions in more depth, at a physiological level. Students in the Population concentration will gain a depth of understanding at an ecosystem level that looks at society, land, and population health.

**Suggested First Year (U1) Courses**

For suggestions on courses to take in your first year (U1), consult the "MSE Student Handbook 2011-2012" available on the MSE website (http://www.mcgill.ca/mse), or contact Ms. Kathy Roulet, the Program Adviser (kathy.roulet@mcgill.ca).

**Program Requirements**

Note: Students are required to take a maximum of 31 credits at the 200 level and a minimum of 12 credits at the 400 level or higher in this program. This includes core and required courses.

Location Note: When planning your schedule and registering for courses, you should verify where each course is offered because courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

**Core: Required Courses (18 credits)**

Location Note: Core required courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ENVR 200</td>
<td>3</td>
<td>The Global Environment</td>
</tr>
<tr>
<td>ENVR 201</td>
<td>3</td>
<td>Society, Environment and Sustainability</td>
</tr>
<tr>
<td>ENVR 202</td>
<td>3</td>
<td>The Evolving Earth</td>
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<tr>
<td>ENVR 203</td>
<td>3</td>
<td>Knowledge, Ethics and Environment</td>
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<tr>
<td>ENVR 301</td>
<td>3</td>
<td>Environmental Research Design</td>
</tr>
<tr>
<td>ENVR 400</td>
<td>3</td>
<td>Environmental Thought</td>
</tr>
</tbody>
</table>

**Core: Complementary Course - Senior Research Project (3 credits)**

Only 3 credits will be applied to the program; extra credits will count as electives.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 519</td>
<td>6</td>
<td>Sustainable Development Plans</td>
</tr>
<tr>
<td>ENVR 401</td>
<td>3</td>
<td>Environmental Research</td>
</tr>
<tr>
<td>ENVR 451</td>
<td>6</td>
<td>Research in Panama</td>
</tr>
</tbody>
</table>

**Domain: Required Course (3 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARA 410</td>
<td>3</td>
<td>Environment and Infection</td>
</tr>
</tbody>
</table>

**Domain: Complementary Courses (39 credits)**

39 credits of the complementary courses are selected as follows:

- 21 credits - Fundamentals, 3 credits from each category
- 12 credits - Human Health, maximum of 3 credits from any one category
- 6 credits - Natural Environment, maximum of 3 credits from any one category

**Fundamentals:**

21 credits of Fundamentals, 3 credits from each category.
Health, Society, and Environment
* Note: you may take GEOG 221 or NRSC 221, but not both.

GEOG 221* (3) Environment and Health
GEOG 303 (3) Health Geography
NRSC 221* (3) Environment and Health
SOCI 234 (3) Population and Society
SOCI 309 (3) Health and Illness

Toxicology
ANSC 312 (3) Animal Health and Disease
NUTR 420 (3) Toxicology and Health Risks
PHAR 303 (3) Principles of Toxicology

Cellular Biology
ANSC 234 (3) Biochemistry 2
Biol 201 (3) Cell Biology and Metabolism
LSCI 202 (3) Molecular Cell Biology

Genetics
Biol 202 (3) Basic Genetics
LSCI 204 (3) Genetics

Molecular Biology
Biol 200 (3) Molecular Biology
LSCI 211 (3) Biochemistry 1

Statistics
One of the following Statistics courses or equivalent:
Note: Credit given for Statistics courses is subject to certain restrictions. Students in Science should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Science.

AEMA 310 (3) Statistical Methods 1
MATH 203 (3) Principles of Statistics 1

Nutrition
* Note: NUTR 307 - Video conference Downtown and at the Macdonald campus.
ANSC 330 (3) Fundamentals of Nutrition
NUTR 307* (3) Human Nutrition

Human Health:
12 credits chosen from Human Health, maximum of 3 credits from any one category:

Immunology and Pathogenicity
<table>
<thead>
<tr>
<th>Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MICR 341</td>
<td>(3)</td>
<td>Mechanisms of Pathogenicity</td>
</tr>
<tr>
<td>MIMM 314</td>
<td>(3)</td>
<td>Immunology</td>
</tr>
<tr>
<td>PARA 438</td>
<td>(3)</td>
<td>Immunology</td>
</tr>
<tr>
<td>PATH 300</td>
<td>(3)</td>
<td>Human Disease</td>
</tr>
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</table>

**Infectious Disease**

<table>
<thead>
<tr>
<th>Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 400</td>
<td>(3)</td>
<td>Eukaryotic Cells and Viruses</td>
</tr>
<tr>
<td>MIMM 324</td>
<td>(3)</td>
<td>Fundamental Virology</td>
</tr>
<tr>
<td>MIMM 413</td>
<td>(3)</td>
<td>Parasitology</td>
</tr>
<tr>
<td>WILD 424</td>
<td>(3)</td>
<td>Parasitology</td>
</tr>
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</table>

**Nutrition**

<table>
<thead>
<tr>
<th>Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUTR 403</td>
<td>(3)</td>
<td>Nutrition in Society</td>
</tr>
<tr>
<td>NUTR 512</td>
<td>(3)</td>
<td>Herbs, Foods and Phytochemicals</td>
</tr>
</tbody>
</table>

**Drugs and Hormones**

<table>
<thead>
<tr>
<th>Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 424</td>
<td>(3)</td>
<td>Metabolic Endocrinology</td>
</tr>
<tr>
<td>PHAR 300</td>
<td>(3)</td>
<td>Drug Action</td>
</tr>
</tbody>
</table>

**Physiology**

<table>
<thead>
<tr>
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<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSC 323</td>
<td>(3)</td>
<td>Mammalian Physiology</td>
</tr>
<tr>
<td>PHGY 209</td>
<td>(3)</td>
<td>Mammalian Physiology 1</td>
</tr>
</tbody>
</table>

**Natural Environment:**

6 credits chosen from the Natural Environment, maximum of 3 credits from any one category:

**Hydrology and Climate**

* Note: you may take BREE 217 or GEOG 322, but not both.

<table>
<thead>
<tr>
<th>Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 452</td>
<td>(3)</td>
<td>Water Resources in Barbados</td>
</tr>
<tr>
<td>BREE 217*</td>
<td>(3)</td>
<td>Hydrology and Water Resources</td>
</tr>
<tr>
<td>GEOG 321</td>
<td>(3)</td>
<td>Climatic Environments</td>
</tr>
<tr>
<td>GEOG 322*</td>
<td>(3)</td>
<td>Environmental Hydrology</td>
</tr>
<tr>
<td>NRSC 510</td>
<td>(3)</td>
<td>Agricultural Micrometeorology</td>
</tr>
</tbody>
</table>

**Techniques and Management**

<table>
<thead>
<tr>
<th>Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BREE 322</td>
<td>(3)</td>
<td>Organic Waste Management</td>
</tr>
<tr>
<td>CHEE 230</td>
<td>(3)</td>
<td>Environmental Aspects of Technology</td>
</tr>
<tr>
<td>ENVB 437</td>
<td>(3)</td>
<td>Assessing Environmental Impact</td>
</tr>
<tr>
<td>GEOG 302</td>
<td>(3)</td>
<td>Environmental Management 1</td>
</tr>
<tr>
<td>URBP 507</td>
<td>(3)</td>
<td>Planning and Infrastructure</td>
</tr>
</tbody>
</table>

**Pest Management**
* Note: you may take BIOL 350 or ENTO 350, but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 350*</td>
<td>(3)</td>
<td>Insect Biology and Control</td>
</tr>
<tr>
<td>ENTO 350*</td>
<td>(3)</td>
<td>Insect Biology and Control</td>
</tr>
<tr>
<td>ENTO 352</td>
<td>(3)</td>
<td>Biocontrol of Pest Insects</td>
</tr>
</tbody>
</table>

**Pollution Control and Management**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BREE 518</td>
<td>(3)</td>
<td>Bio-Treatment of Wastes</td>
</tr>
<tr>
<td>NRSC 333</td>
<td>(3)</td>
<td>Pollution and Bioremediation</td>
</tr>
</tbody>
</table>

**Ecology**

* Note: you may take ENVR 540 or BIOL 540, but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 432</td>
<td>(3)</td>
<td>Limnology</td>
</tr>
<tr>
<td>BIOL 465</td>
<td>(3)</td>
<td>Conservation Biology</td>
</tr>
<tr>
<td>BIOL 540*</td>
<td>(3)</td>
<td>Ecology of Species Invasions</td>
</tr>
<tr>
<td>BIOL 553</td>
<td>(3)</td>
<td>Neotropical Environments</td>
</tr>
<tr>
<td>ENVB 410</td>
<td>(3)</td>
<td>Ecosystem Ecology</td>
</tr>
<tr>
<td>ENVR 540*</td>
<td>(3)</td>
<td>Ecology of Species Invasions</td>
</tr>
<tr>
<td>MICR 331</td>
<td>(3)</td>
<td>Microbial Ecology</td>
</tr>
<tr>
<td>PLNT 304</td>
<td>(3)</td>
<td>Biology of Fungi</td>
</tr>
<tr>
<td>PLNT 460</td>
<td>(3)</td>
<td>Plant Ecology</td>
</tr>
</tbody>
</table>

Revision, August 2011. End of revision.

**Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) – Major Environment – Ecological Determinants of Health – Population (63 credits)**

Revision, August 2011. Start of revision.

The Population concentration in this domain is open only to students in the B.Sc.(Ag.Env.Sc.) Major Environment or B.Sc. Major Environment program. This domain considers the interface between the environment and human well-being, with particular focus on the triad that ties human health to the environment through the elements of food and infectious agents. Each of these elements is influenced by planned and unplanned environmental disturbances. For example, agricultural practices shift the balance between beneficial and harmful ingredients of food. Use of insecticides presents dilemmas with regard to the environment, economics, and human health. The distribution of infectious diseases is influenced by the climatic conditions that permit vectors to coexist with man, by deforestation, by urbanization, and by human interventions ranging from the building of dams to provision of potable water.

In designing interventions that aim to prevent or reduce infectious contaminants in the environment, or to improve food production and nutritional quality, not only is it important to understand methods of intervention, but also to understand social forces that influence how humans respond to such interventions.

Students in the Population concentration will gain a depth of understanding at an ecosystem level that looks at society, land, and population health. Students in the Cellular concentration will explore these interactions in more depth, at a physiological level.

**Suggested First Year (U1) Courses**

For suggestions on courses to take in your first year (U1), you can consult the "MSE Student Handbook 2011-2012" available on the MSE website (http://www.mcgill.ca/mse), or contact Ms. Kathy Roulet, the Program Adviser (kathy.roulet@mcgill.ca).

**Program Requirements**

Note: Students are required to take a maximum of 31 credits at the 200 level and a minimum of 12 credits at the 400 level or higher in this program. This includes core and required courses.

Location Note: When planning your schedule and registering for courses, you should verify where each course is offered because courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

**Core: Required Courses (18 credits)**
Location Note: Core required courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.

ENVR 200 (3) The Global Environment
ENVR 201 (3) Society, Environment and Sustainability
ENVR 202 (3) The Evolving Earth
ENVR 203 (3) Knowledge, Ethics and Environment
ENVR 301 (3) Environmental Research Design
ENVR 400 (3) Environmental Thought

Core: Complementary Course - Senior Research Project (3 credits)
Only 3 credits will be applied to the program; extra credits will count as electives.
AGRI 519 (6) Sustainable Development Plans
ENVR 401 (3) Environmental Research
ENVR 451 (6) Research in Panama

Domain: Required Course (3 credits)
PARA 410 (3) Environment and Infection

Domain: Complementary Courses (39 credits)
39 credits of complementary courses are selected as follows:
21 credits - Fundamentals, maximum of 3 credits from each category
6 credits - List A categories, maximum of 3 credits from any one category
12 credits - List B categories, maximum of 3 credits from any one category

Fundamentals:
21 credits of fundamentals, 3 credits from each category:

Health and Environment
GEOG 221 (3) Environment and Health
NRSC 221 (3) Environment and Health

Health and Society
GEOG 303 (3) Health Geography
SOCI 234 (3) Population and Society
SOCI 309 (3) Health and Illness

Toxicology
ANSC 312 (3) Animal Health and Disease
NUTR 420 (3) Toxicology and Health Risks
PHAR 303 (3) Principles of Toxicology

Biology
BIOL 200 (3) Molecular Biology
BIOL 201 (3) Cell Biology and Metabolism
LSCI 211 (3) Biochemistry 1

Statistics
One of the following Statistics courses or equivalent:
Note: Credit given for Statistics courses is subject to certain restrictions. Students in Science should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Science.

AEMA 310 (3) Statistical Methods 1
MATH 203 (3) Principles of Statistics 1

Nutrition
* Note: NUTR 307 (Video conference Downtown and at the Macdonald campus)

ANSC 330 (3) Fundamentals of Nutrition
NUTR 207 (3) Nutrition and Health
NUTR 307* (3) Human Nutrition

Advanced Ecology
* Note: you may take ENVR 540 or BIOL 540, but not both.

BIOL 465 (3) Conservation Biology
BIOL 540* (3) Ecology of Species Invasions
BIOL 553 (3) Neotropical Environments
ENVB 410 (3) Ecosystem Ecology
ENVB 506 (3) Quantitative Methods in Ecology
ENVR 540* (3) Ecology of Species Invasions
MICR 331 (3) Microbial Ecology
PLNT 460 (3) Plant Ecology

List A:
6 credits from the following List A categories, maximum of 3 credits from any one category:

Hydrology, Climate, and Agriculture
* Note: you may take BREE 217 or GEOG 322, but not both.

AGRI 340 (3) Principles of Ecological Agriculture
AGRI 452 (3) Water Resources in Barbados
AGRI 550 (3) Sustained Tropical Agriculture
BREE 217* (3) Hydrology and Water Resources
GEOG 321 (3) Climatic Environments
GEOG 322* (3) Environmental Hydrology
NRSC 510 (3) Agricultural Micrometeorology

Decision Making and Social Change
* Note: you may take AGEC 200 or ECON 208, but not both.

AGEC 200* (3) Principles of Microeconomics
AGEC 242  (3)  Management Theories and Practices
BTEC 502  (3)  Biotechnology Ethics and Society
ECON 208*  (3)  Microeconomic Analysis and Applications
EDER 461  (3)  Society and Change
GEOG 302  (3)  Environmental Management 1
GEOG 404  (3)  Environmental Management 2
PHIL 343  (3)  Biomedical Ethics
URBP 520  (3)  Globalization: Planning and Change

Development and History
AGRI 210  (3)  Agro-Ecological History
ANTH 212  (3)  Anthropology of Development
HIST 292  (3)  History and the Environment
SOCI 254  (3)  Development and Underdevelopment

List B:
12 credits from the following List B categories, maximum of 3 credits from any one category:

Techniques and Management
* Note: you may take ENVB 430 or GEOG 201, but not both.
CHEE 230  (3)  Environmental Aspects of Technology
ENVB 430*  (3)  GIS for Natural Resource Management
ENVB 437  (3)  Assessing Environmental Impact
GEOG 201*  (3)  Introductory Geo-Information Science
URBP 507  (3)  Planning and Infrastructure

Immunology and Infectious Disease
ANSC 400  (3)  Eukaryotic Cells and Viruses
MIMM 314  (3)  Immunology
MIMM 324  (3)  Fundamental Virology
MIMM 413  (3)  Parasitology
PARA 438  (3)  Immunology
WILD 424  (3)  Parasitology

Nutrition and Agriculture
* Note: NUTR 512 (Video conference Downtown and at the Macdonald campus)
AGRI 411  (3)  Global Issues on Development, Food and Agriculture
NUTR 403  (3)  Nutrition in Society
NUTR 501  (3)  Nutrition in Developing Countries
NUTR 512*  (3)  Herbs, Foods and Phytochemicals

Populations and Place
Pollution and Pest Management

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 350</td>
<td>3</td>
<td>Insect Biology and Control</td>
</tr>
<tr>
<td>BREE 322</td>
<td>3</td>
<td>Organic Waste Management</td>
</tr>
<tr>
<td>ENTO 352</td>
<td>3</td>
<td>Biocontrol of Pest Insects</td>
</tr>
<tr>
<td>NRSC 333</td>
<td>3</td>
<td>Pollution and Bioremediation</td>
</tr>
</tbody>
</table>

Genetics

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 202</td>
<td>3</td>
<td>Basic Genetics</td>
</tr>
<tr>
<td>LSCI 204</td>
<td>3</td>
<td>Genetics</td>
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</table>

Revision, August 2011. End of revision.

7.11.3 Environmetrics Domain

This domain is open only to students in the B.Sc.(Ag.Env.Sc.) Major Environment or B.Sc. Major Environment program.

<table>
<thead>
<tr>
<th>Adviser</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Kathy Roulet</td>
<td>Professor Pierre Dutilleul</td>
</tr>
<tr>
<td>Email: <a href="mailto:kathy.roulet@mcgill.ca">kathy.roulet@mcgill.ca</a></td>
<td>Email: <a href="mailto:pierre.dutilleul@mcgill.ca">pierre.dutilleul@mcgill.ca</a></td>
</tr>
<tr>
<td>Telephone: 514-398-4306</td>
<td>Telephone: 514-398-7870</td>
</tr>
</tbody>
</table>

7.11.3.1 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) - Major Environment - Environmetrics (63 credits)

This domain (63 credits including core) is open only to students in the B.Sc.(Ag.Env.Sc.) Major in Environment or B.Sc. Major in Environment program.

In view of the crucial need for sound study design and appropriate statistical methods for analyzing environmental changes and their impacts on humans and various life forms and their ecological relationships, this program is intended to provide students with a strong background in the use of statistical methods of data analysis in environmental sciences.

Graduates will be capable of effectively participating in the design of environmental studies and adequately analyzing data for use by the environmental community. Accordingly, the list of courses for the Environmetrics Domain is composed primarily of statistics courses and mathematically oriented courses with biological and ecological applications. The list is completed by general courses that refine the topics introduced in the MSE core courses by focusing on the ecology of living organisms, soil sciences or water resources, and impact assessment. These courses should allow the students to understand their interlocutors and be understood by them in their future job. Students can further develop their background in applied or mathematical statistics and their expertise in environmental sciences by taking complementary courses along each of two axes: statistics and mathematics, and environmental sciences. An internship is also offered to students to provide them with preliminary professional experience.

Suggested First Year (U1) Courses

For suggestions on courses to take in your first year (U1), you can consult the "MSE Student Handbook 2011-2012" (available on the MSE website at http://www.mcgill.ca/mse), or contact Kathy Roulet, the Program Adviser (kathy.roulet@mcgill.ca).

Prerequisites and equivalent courses are common with Math courses, so check with your adviser when choosing your courses. Be especially careful with Statistics courses, as you will receive no credit (and no warning!) for a course that is considered equivalent to one you have already taken. Note: Credit given for Statistics courses is subject to certain restrictions. Students in Science should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Science.

Statistics courses BIOL 373 OR AEMA 310 can be taken in U1, but do not take them if you want to follow Option 1 (below), as they overlap with MATH 324.

Program Requirements
Note: Students are required to take a maximum of 30 credits at the 200 level and a minimum of 12 credits at the 400 level or higher in this program. This includes core and required courses.

Location Note: When planning their schedule and registering for courses, students should verify where each course is offered because courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

Core: Required Courses (18 credits)
Location Note: Core required courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course if you want to take it on the Downtown campus, and in Section 051 of an ENVR course if you want to take it on the Macdonald campus.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVR 200</td>
<td>3</td>
<td>The Global Environment</td>
</tr>
<tr>
<td>ENVR 201</td>
<td>3</td>
<td>Society, Environment and Sustainability</td>
</tr>
<tr>
<td>ENVR 202</td>
<td>3</td>
<td>The Evolving Earth</td>
</tr>
<tr>
<td>ENVR 203</td>
<td>3</td>
<td>Knowledge, Ethics and Environment</td>
</tr>
<tr>
<td>ENVR 301</td>
<td>3</td>
<td>Environmental Research Design</td>
</tr>
<tr>
<td>ENVR 400</td>
<td>3</td>
<td>Environmental Thought</td>
</tr>
</tbody>
</table>

Core: Complementary Course - Senior Research Project (3 credits)
Only 3 credits will be applied to the program; extra credits will count as electives.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 519</td>
<td>6</td>
<td>Sustainable Development Plans</td>
</tr>
<tr>
<td>ENVR 401</td>
<td>3</td>
<td>Environmental Research</td>
</tr>
<tr>
<td>ENVR 451</td>
<td>6</td>
<td>Research in Panama</td>
</tr>
</tbody>
</table>

Domain: Required Courses (6 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEMA 403</td>
<td>3</td>
<td>Environmetrics Stage</td>
</tr>
<tr>
<td>AEMA 414</td>
<td>3</td>
<td>Temporal and Spatial Statistics 01</td>
</tr>
</tbody>
</table>

Domain - Complementary Courses (36 credits)
36 credits of complementary courses are selected as follows:
12 credits - Fundamentals
3 credits - Basic Environmental Science
6 credits - Statistics, one of two options
15 credits - List 1 and List 2

Fundamentals:
12 credits of Fundamentals, 3 credits from each category.

Ecology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 308</td>
<td>3</td>
<td>Ecological Dynamics</td>
</tr>
<tr>
<td>ENVB 305</td>
<td>3</td>
<td>Population &amp; Community Ecology</td>
</tr>
</tbody>
</table>

Impact

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVB 437</td>
<td>3</td>
<td>Assessing Environmental Impact</td>
</tr>
<tr>
<td>MIME 308</td>
<td>3</td>
<td>Social Impact of Technology</td>
</tr>
</tbody>
</table>

Modelling
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 309</td>
<td>(3)</td>
<td>Mathematical Models in Biology</td>
</tr>
<tr>
<td>ENVB 506</td>
<td>(3)</td>
<td>Quantitative Methods in Ecology</td>
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</table>

**GIS Techniques**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVB 430</td>
<td>(3)</td>
<td>GIS for Natural Resource Management</td>
</tr>
<tr>
<td>GEOG 201</td>
<td>(3)</td>
<td>Introductory Geo-Information Science</td>
</tr>
</tbody>
</table>

**Basic Environmental Science:**

One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BREE 217</td>
<td>(3)</td>
<td>Hydrology and Water Resources</td>
</tr>
<tr>
<td>CIVE 323</td>
<td>(3)</td>
<td>Hydrology and Water Resources</td>
</tr>
<tr>
<td>ENVB 210</td>
<td>(3)</td>
<td>The Biophysical Environment</td>
</tr>
<tr>
<td>GEOG 305</td>
<td>(3)</td>
<td>Soils and Environment</td>
</tr>
<tr>
<td>GEOG 322</td>
<td>(3)</td>
<td>Environmental Hydrology</td>
</tr>
<tr>
<td>GEOG 350</td>
<td>(3)</td>
<td>Ecological Biogeography</td>
</tr>
</tbody>
</table>

**Statistics:**

6 credits of Statistics are selected from one of the following two options.

Note: Credit given for Statistics courses is subject to certain restrictions. Students in Science should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Science. Several Statistics courses overlap (especially with MATH 324) and cannot be taken together. These rules do not apply to B.Sc.(Ag.Env.Sc.) students.

**Option 1**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>MATH 323</td>
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<td>Probability</td>
</tr>
<tr>
<td>MATH 324</td>
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</tbody>
</table>

**Option 2**

One of:

<table>
<thead>
<tr>
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<th>Units</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>AEMA 310</td>
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</tr>
<tr>
<td>BIOL 373</td>
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<td>Biometry</td>
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And one of:

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<tbody>
<tr>
<td>AEMA 411</td>
<td>(3)</td>
<td>Experimental Designs 01</td>
</tr>
<tr>
<td>CIVE 555</td>
<td>(3)</td>
<td>Environmental Data Analysis</td>
</tr>
<tr>
<td>GEOG 351</td>
<td>(3)</td>
<td>Quantitative Methods</td>
</tr>
<tr>
<td>SOCI 461</td>
<td>(3)</td>
<td>Quantitative Data Analysis</td>
</tr>
</tbody>
</table>

A total of 15 credits are chosen from the following two lists.

**List 1**

3 credits minimum of statistics and mathematics chosen from:

* Note: or equivalent courses to BREE 252 or BREE 319.
Theoretical Ecology (3) BIOL 434
Computing for Engineers (3) BREE 252*
Engineering Mathematics (3) BREE 319*
Modelling Environmental Systems (3) GEOG 501
Linear Algebra (3) MATH 223
Nonlinear Dynamics and Chaos (3) MATH 326
Regression and Analysis of Variance (3) MATH 423
Introduction to Stochastic Processes (3) MATH 447
Sampling Theory and Applications (4) MATH 525
Quantitative Methods 1 (3) SOCI 504
Quantitative Methods 2 (3) SOCI 505
Social Research Design and Practice (3) SOCI 580

List 2
3 credits minimum of environmental sciences chosen from:

Water Resources in Barbados (3) AGRI 452
Sustained Tropical Agriculture (3) AGRI 550
Ecology/Behaviour Field Course (3) BIOL 331
Neotropical Environments (3) BIOL 553
Phylogeny and Biogeography (3) ENVB 313
Human Ecology in Geography (3) GEOG 300
Environmental Management 1 (3) GEOG 302
Environmental Management 2 (3) GEOG 404
Urban Field Studies (3) GEOG 494
Ecology of Coastal Waters (3) GEOG 497
Subarctic Field Studies (3) GEOG 499
Pollution and Bioremediation (3) NRSC 333
Plant Ecology (3) PLNT 460
Fisheries and Wildlife Management (4) WILD 401
Urban Forests and Trees (3) WOOD 300
Environmental Issues: Forestry (3) WOOD 420

7.11.4 Food Production and Environment Domain

This domain is open only to students in the B.Sc.(Ag.Env.Sc.) Major Environment or B.Sc. Major Environment program.

<table>
<thead>
<tr>
<th>Adviser</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Kathy Roulet</td>
<td>Professor Caroline Begg</td>
</tr>
<tr>
<td>Email: <a href="mailto:kathy.roulet@mcgill.ca">kathy.roulet@mcgill.ca</a></td>
<td>Email: <a href="mailto:caroline.begg@mcgill.ca">caroline.begg@mcgill.ca</a></td>
</tr>
<tr>
<td>Telephone: 514-398-4306</td>
<td>Telephone: 514-398-8749</td>
</tr>
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</table>

7.11.4.1 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) – Major Environment – Food Production and Environment (63 credits)

Revision, August 2011. Start of revision.
This domain (63 credits including core) is open only to students in the B.Sc.(Ag.Env.Sc.) Major in Environment or B.Sc. in Environment program.

The business of food production is an area of human activity with a large and intimate interaction with the environment. Modern agriculturalists must strike a delicate balance between trying to provide food for themselves, their families, and urban dwellers and trying to minimize environmental damage. When negative effects due to agricultural activities do occur, they are not usually the classic point-source effects that we have come to associate with industry or large cities. Rather, the effects are over extremely large land areas cumulating, perhaps, in pollution of river systems or lakes some distance away. As world populations grow, and as diets change, potentially negative interactions between agricultural systems and other facets of the environment will become more frequent. In the same way, urban sprawl will make conflicts between agriculture and urbanites more common.

With a judicious choice of courses, graduates of this domain may be eligible to apply for membership in the Ordre des agronomes du Québec (OAQ) and the Agricultural Institute of Canada (AIC).

**Program Prerequisites or Corequisites**

All students in this program MUST take these pre- or corequisite courses, or their equivalents. These courses are taken as follows:

- **Location Note:** When planning their schedule and registering for courses, students should verify where each course is offered because courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

One of the following courses or CEGEP equivalent (e.g., CEGEP objective 00XU):

- **BIOL 112** (3) Cell and Molecular Biology
- **LSCI 211** (3) Biochemistry 1

One of the following courses or CEGEP equivalent (e.g., CEGEP objective 00XV):

- **CHEM 212** (4) Introductory Organic Chemistry 1
- **FDSC 230** (4) Organic Chemistry

**Suggested First Year (U1) Courses**

For suggestions on courses to take in your first year (U1), you can consult the "MSE Student Handbook 2011-2012" available on the MSE website (http://www.mcgill.ca/mse), or contact Ms. Kathy Roulet, the Program Adviser (kathy.roulet@mcgill.ca).

**Program Requirements**

**Note:** Students are required to take a maximum of 34 credits at the 200 level and a minimum of 15 credits at the 400 level or higher in this program. This includes core and required courses, but does not include the domain prerequisites or corequisites listed above.

- **Location Note:** When planning their schedule and registering for courses, students should verify where each course is offered because courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

**Core: Required Courses (18 credits)**

- **Location Note:** Core required courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.

- **ENVR 200** (3) The Global Environment
- **ENVR 201** (3) Society, Environment and Sustainability
- **ENVR 202** (3) The Evolving Earth
- **ENVR 203** (3) Knowledge, Ethics and Environment
- **ENVR 301** (3) Environmental Research Design
- **ENVR 400** (3) Environmental Thought

**Core: Complementary Course - Senior Research Project (3 credits)**

Only 3 credits will be applied to the program; extra credits will count as electives.

- **AGRI 519** (6) Sustainable Development Plans
- **ENVR 401** (3) Environmental Research
- **ENVR 451** (6) Research in Panama
Domain: Required Courses (9 credits)

AEBI 210  (3)  Organisms 1
AGRI 210  (3)  Agro-Ecological History
PLNT 300  (3)  Cropping Systems

Domain: Complementary Courses (33 credits)

33 credits of complementary courses selected as follows:
15 credits - Basic Sciences
12 credits - Applied Sciences
6 credits - Social Sciences/Humanities

Basic Sciences:

15 credits of Basic Sciences selected as follows:

One of the following Statistics courses or equivalent:
Note: Credit given for Statistics courses is subject to certain restrictions. Students in Science should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Science.

AEMA 310  (3)  Statistical Methods 1
MATH 203  (3)  Principles of Statistics 1

One of:

AGRI 340  (3)  Principles of Ecological Agriculture
ANSC 250  (3)  Principles of Animal Science

One of:

BIOL 202  (3)  Basic Genetics
LSCI 204  (3)  Genetics

One of:

ENVB 210  (3)  The Biophysical Environment
GEOG 305  (3)  Soils and Environment

One of:

BIOL 308  (3)  Ecological Dynamics
ENVB 305  (3)  Population & Community Ecology

Applied Sciences:

12 credits of Applied Sciences from the following:
* Note: you may take BREE 217 or GEOG 322, but not both; you may take FDSC 200 or NUTR 207, but not both.

AGRI 411  (3)  Global Issues on Development, Food and Agriculture
AGRI 435  (3)  Soil and Water Quality Management
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>AGRI 550</td>
<td>3</td>
<td>Sustained Tropical Agriculture</td>
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<tr>
<td>BIOL 465</td>
<td>3</td>
<td>Conservation Biology</td>
</tr>
<tr>
<td>BIOL 553</td>
<td>3</td>
<td>Neotropical Environments</td>
</tr>
<tr>
<td>BREE 217*</td>
<td>3</td>
<td>Hydrology and Water Resources</td>
</tr>
<tr>
<td>BREE 322</td>
<td>3</td>
<td>Organic Waste Management</td>
</tr>
<tr>
<td>BREE 518</td>
<td>3</td>
<td>Bio-Treatment of Wastes</td>
</tr>
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<td>ENVB 437</td>
<td>3</td>
<td>Assessing Environmental Impact</td>
</tr>
<tr>
<td>FDSC 200*</td>
<td>3</td>
<td>Introduction to Food Science</td>
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<tr>
<td>FDSC 535</td>
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<td>Food Biotechnology</td>
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<td>GEOG 302</td>
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<td>Environmental Management 1</td>
</tr>
<tr>
<td>GEOG 322*</td>
<td>3</td>
<td>Environmental Hydrology</td>
</tr>
<tr>
<td>GEOG 380</td>
<td>3</td>
<td>Adaptive Environmental Management</td>
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<td>MICR 331</td>
<td>3</td>
<td>Microbial Ecology</td>
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<tr>
<td>NRSC 333</td>
<td>3</td>
<td>Pollution and Bioremediation</td>
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<tr>
<td>NUTR 207*</td>
<td>3</td>
<td>Nutrition and Health</td>
</tr>
<tr>
<td>NUTR 403</td>
<td>3</td>
<td>Nutrition in Society</td>
</tr>
<tr>
<td>NUTR 420</td>
<td>3</td>
<td>Toxicology and Health Risks</td>
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<tr>
<td>PARA 410</td>
<td>3</td>
<td>Environment and Infection</td>
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<tr>
<td>PHAR 303</td>
<td>3</td>
<td>Principles of Toxicology</td>
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<tr>
<td>PLNT 434</td>
<td>3</td>
<td>Weed Biology and Control</td>
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<tr>
<td>SOIL 315</td>
<td>3</td>
<td>Soil Fertility and Fertilizer Use</td>
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<tr>
<td>SOIL 445</td>
<td>3</td>
<td>Agroenvironmental Fertilizer Use</td>
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<td>SOIL 510</td>
<td>3</td>
<td>Environmental Soil Chemistry</td>
</tr>
<tr>
<td>WILD 401</td>
<td>4</td>
<td>Fisheries and Wildlife Management</td>
</tr>
</tbody>
</table>

**Social Sciences/Humanities:**

6 credits in Social Sciences and Humanities are selected as follows:

* Note: You may take AGEC 200 or ECON 208, but not both; you may take AGEC 333 or ECON 405, but not both.

** Note: If WILD 415 is taken, 1 additional credit of complementary courses must be taken.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGEC 200*</td>
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<td>AGEC 320</td>
<td>3</td>
<td>Intermediate Microeconomic Theory</td>
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<td>AGEC 333*</td>
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<td>AGEC 430</td>
<td>3</td>
<td>Agriculture, Food and Resource Policy</td>
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<tr>
<td>AGEC 442</td>
<td>3</td>
<td>Economics of International Agricultural Development</td>
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<tr>
<td>ANTH 418</td>
<td>3</td>
<td>Environment and Development</td>
</tr>
<tr>
<td>ECON 208*</td>
<td>3</td>
<td>Microeconomic Analysis and Applications</td>
</tr>
<tr>
<td>ECON 225</td>
<td>3</td>
<td>Economics of the Environment</td>
</tr>
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<td>ECON 405*</td>
<td>3</td>
<td>Natural Resource Economics</td>
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<tr>
<td>ENVR 465</td>
<td>3</td>
<td>Environment and Social Change</td>
</tr>
<tr>
<td>GEOG 404</td>
<td>3</td>
<td>Environmental Management 2</td>
</tr>
<tr>
<td>GEOG 410</td>
<td>3</td>
<td>Geography of Underdevelopment: Current Problems</td>
</tr>
<tr>
<td>GEOG 498</td>
<td>3</td>
<td>Humans in Tropical Environments</td>
</tr>
<tr>
<td>GEOG 510</td>
<td>3</td>
<td>Humid Tropical Environments</td>
</tr>
</tbody>
</table>
Land Surface Processes and Environmental Change Domain

This domain is open only to students in the B.Sc.(Ag.Env.Sc.) Major Environment or B.Sc. Major Environment program.

Mentor
Professor Ian Strachan
Email: ian.strachan@mcgill.ca
Telephone: 514-398-7935

7.11.5.1 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.)-Major Environment - Land Surface Processes and Environmental Change (63 credits)

This domain (63 credits including core) is open only to students in the B.Sc.(Ag.Env.Sc.) Major in Environment or B.Sc. Major in Environment programs.

The thin soil layer on the planet's land surfaces controls the vital inputs of water, nutrients, and energy to terrestrial and freshwater aquatic ecosystems. Widespread occurrences around the globe of desertification, soil erosion, deforestation, and land submergence over water reservoirs indicate that this dynamic system is under increasing pressure from population growth and changes in climate and land uses. Production of key greenhouse gases (water vapour, CO2, and methane) is controlled by complex processes operating at the land surface, involving climate change feedbacks that need to be fully understood, given current global warming trends.

The program introduces students to the interacting physical and biogeochemical processes at the atmosphere-lithosphere interface, which fashion land surface habitats and determine their biological productivity and response to anthropogenic or natural environmental changes. Through an appropriate selection of courses, students can prepare for graduate training in emerging research areas such as earth system sciences, environmental hydrology, and landscape ecology.

Suggested First Year (U1) Courses
For suggestions on courses to take in your first year (U1), you can consult the "MSE Student Handbook 2011-2012" available on the MSE website (http://www.mcgill.ca/mse), or contact Ms. Kathy Roulet, the Program Adviser (kathy.roulet@mcgill.ca).

Program Requirements
Note: Students are required to take a maximum of 30 credits at the 200 level and a minimum of 12 credits at the 400 level or higher in this program. This includes core and required courses.

Location Note: Core required courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

Core: Required Courses (18 credits)
Location Note: Core required courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.

ENVR 200 (3) The Global Environment
ENVR 201 (3) Society, Environment and Sustainability
ENVR 202 (3) The Evolving Earth
ENVR 203 (3) Knowledge, Ethics and Environment
ENVR 301 (3) Environmental Research Design
ENVR 400 (3) Environmental Thought

Core: Complementary Course - Senior Research Project (3 credits)
Only 3 credits will be applied to the program; extra credits will count as electives.

AGRI 519 (6) Sustainable Development Plans
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVR 401</td>
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<td>Environmental Research</td>
</tr>
<tr>
<td>ENVR 451</td>
<td>(6)</td>
<td>Research in Panama</td>
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</table>

**Domain Required Course (3 credits)**

<table>
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<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>GEOG 203</td>
<td>(3)</td>
<td>Environmental Systems</td>
</tr>
</tbody>
</table>

**Domain: Complementary Courses (39 credits)**

39 credits of complementary courses are selected as follows:

- 9 credits - 3 credits from each category of Statistics, GIS and Remote Sensing Techniques, Weather and Climate
- 9 credits of fundamental land surface processes
- 3 credits of environment and resource management
- 3 credits of field course
- 3 credits of social science
- 12 credits total of advanced studies chosen from the List A: Particular Environments and the List B: Surface Processes

**Statistics**

One of the following Statistics courses or equivalent:

- AEMA 310 (3) Statistical Methods 1
- GEOG 202 (3) Statistics and Spatial Analysis
- MATH 203 (3) Principles of Statistics 1

**GIS and Remote Sensing Techniques**

One of:

- ENVB 430 (3) GIS for Natural Resource Management
- GEOG 201 (3) Introductory Geo-Information Science
- GEOG 308 (3) Principles of Remote Sensing

**Weather and Climate**

One of:

- ATOC 215 (3) Oceans, Weather and Climate
- ENVB 301 (3) Meteorology

**Fundamental Land Surface Processes:**

9 credits of fundamental land surface processes chosen as follows:

- GEOG 321 (3) Climatic Environments

And/or one of:

- GEOG 272 (3) Earth's Changing Surface
- SOIL 300 (3) Geosystems
<table>
<thead>
<tr>
<th>Course Code</th>
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<td>GEOG 305</td>
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<td>Soils and Environment</td>
</tr>
<tr>
<td>SOIL 326</td>
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<td>Soils in a Changing Environment</td>
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And/or one of:

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<tr>
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<th>Credits</th>
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<tbody>
<tr>
<td>BREE 217</td>
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<td>Hydrology and Water Resources</td>
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<td>GEOG 322</td>
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### Environment and Resource Management:

One of:

* Note: you may take BIOL 308 or ENVB 305, but not both.

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<td>AGRI 452</td>
<td>3</td>
<td>Water Resources in Barbados</td>
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<td>AGRI 550</td>
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<td>Sustained Tropical Agriculture</td>
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<tr>
<td>BIOL 308</td>
<td>3</td>
<td>Ecological Dynamics</td>
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<td>BIOL 465</td>
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<td>Conservation Biology</td>
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<td>CHEE 230</td>
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<td>Environmental Aspects of Technology</td>
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<td>CIVE 225</td>
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<td>ENVB 305</td>
<td>3</td>
<td>Population &amp; Community Ecology</td>
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<td>3</td>
<td>Assessing Environmental Impact</td>
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<td>ESYS 301</td>
<td>3</td>
<td>Earth System Modelling</td>
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<td>3</td>
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<td>Environmental Management 2</td>
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<tr>
<td>WILD 421</td>
<td>3</td>
<td>Wildlife Conservation</td>
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<td>WOOD 420</td>
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<td>Environmental Issues: Forestry</td>
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<td>WOOD 441</td>
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### Field Course:

One of:

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<tbody>
<tr>
<td>BIOL 553</td>
<td>3</td>
<td>Neotropical Environments</td>
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<tr>
<td>GEOG 495</td>
<td>3</td>
<td>Field Studies - Physical Geography</td>
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<td>GEOG 496</td>
<td>3</td>
<td>Geographical Excursion</td>
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<tr>
<td>GEOG 499</td>
<td>3</td>
<td>Subarctic Field Studies</td>
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<tr>
<td>NRSC 382</td>
<td>3</td>
<td>Ecological Monitoring and Analysis</td>
</tr>
<tr>
<td>WILD 475</td>
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<td>Desert Ecology</td>
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### Social Science:

One of:

<table>
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<tr>
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<td>Resource Economics</td>
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<tr>
<td>ANTH 339</td>
<td>3</td>
<td>Ecological Anthropology</td>
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<td>ECON 225</td>
<td>3</td>
<td>Economics of the Environment</td>
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<tr>
<td>ECON 326</td>
<td>3</td>
<td>Ecological Economics</td>
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<td>ECON 405</td>
<td>(3)</td>
<td>Natural Resource Economics</td>
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<tr>
<td>GEOG 221</td>
<td>(3)</td>
<td>Environment and Health</td>
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<td>GEOG 408</td>
<td>(3)</td>
<td>Geography of Development</td>
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<td>(3)</td>
<td>Humans in Tropical Environments</td>
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<td>GEOG 508</td>
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<td>Resources, People and Power</td>
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<td>NRSC 221</td>
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<td>SOCI 565</td>
<td>(3)</td>
<td>Social Change in Panama</td>
</tr>
<tr>
<td>URBP 520</td>
<td>(3)</td>
<td>Globalization: Planning and Change</td>
</tr>
</tbody>
</table>

12 credits total of advanced studies chosen from the following two lists:

**List A - Particular Environments:**
3-9 credits of advanced study of Particular Environments:
* Note: you may take BIOL 432 or ENVB 315, but not both.

- BIOL 432* (3) Limnology
- ENVB 315* (3) Science of Inland Waters
- ENVB 410 (3) Ecosystem Ecology
- GEOG 350 (3) Ecological Biogeography
- GEOG 372 (3) Running Water Environments
- GEOG 470 (3) Wetlands
- GEOG 536 (3) Geocryology
- GEOG 550 (3) Historical Ecology Techniques
- PLNT 358 (3) Flowering Plant Diversity
- PLNT 460 (3) Plant Ecology

**List B - Surface Processes:**
3-9 credits advanced study of Surface Processes:

- ATOC 315 (3) Thermodynamics and Convection
- BREE 509 (3) Hydrologic Systems and Modelling
- EPSC 549 (3) Hydrogeology
- EPSC 580 (3) Aqueous Geochemistry
- GEOG 501 (3) Modelling Environmental Systems
- GEOG 505 (3) Global Biogeochemistry
- GEOG 522 (3) Advanced Environmental Hydrology
- GEOG 537 (3) Advanced Fluvial Geomorphology
- NRSC 333 (3) Pollution and Bioremediation
- SOIL 331 (3) Soil Physics
- SOIL 510 (3) Environmental Soil Chemistry

### 7.11.6 Renewable Resource Management Domain

This domain is open only to students in the B.Sc.(Ag.Env.Sc.) Major Environment or B.Sc. Major Environment program.
7.11.6.1  Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) – Major Environment – Renewable Resource Management (63 credits)

Revision, August 2011. Start of revision.

This domain (63 credits including core) is open only to students in the B.Sc.(Ag.Env.Sc.) Major in Environment or B.Sc. Major in Environment program. Renewable resource management is an emerging field that focuses on the ecosystem structures and processes required to sustain the delivery, to humanity, of ecosystem goods and services such as food, clean water and air, essential nutrients, and the provision of beauty and inspiration. Renewable resource management recognizes humans as integral components of ecosystems and is used to develop goals that are consistent with sustainability and ecosystem maintenance.

The Renewable Resource Management domain provides students with an understanding of: 1) the interactions between physical and biological factors that determine the nature and dynamics of populations and entities in the natural environment; 2) the ways in which ecosystems can be managed to meet specific goals for the provision of goods and services; 3) the economic and social factors that determine how ecosystems are managed; 4) the ways in which management of natural resources can affect the capability of natural ecosystems to continue to supply human needs in perpetuity; and 5) the approaches and technologies required to monitor and analyze the dynamics of natural and managed ecosystems.

Program Prerequisites or Corequisites

All students in this program MUST take the following pre- or corequisite courses:

One of the following biology courses or CEGEP equivalent (e.g., CEGEP objective 00XU):

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 112</td>
<td>3</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>LSCI 211</td>
<td>3</td>
<td>Biochemistry 1</td>
</tr>
</tbody>
</table>

One of the following chemistry courses or CEGEP equivalent (e.g., CEGEP objective 00XV):

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 212</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>FDSC 230</td>
<td>4</td>
<td>Organic Chemistry</td>
</tr>
</tbody>
</table>

Suggested First Year (U1) Courses

For suggestions on courses to take in your first year (U1), you can consult the "MSE Student Handbook 2011-2012" available on the MSE website (http://www.mcgill.ca/mse), or contact Ms. Kathy Roulet, the Program Adviser (kathy.roulet@mcgill.ca).

Program Requirements

Note: Students are required to take a maximum of 30 credits at the 200 level and a minimum of 12 credits at the 400 level or higher in this program. This includes core and required courses, but does not include the domain prerequisites or corequisites listed above.

Location Note: When planning their schedule and registering for courses, students should verify where each course is offered because courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

Core: Required Courses (18 credits)

Location Note: Core required courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVR 200</td>
<td>3</td>
<td>The Global Environment</td>
</tr>
<tr>
<td>ENVR 201</td>
<td>3</td>
<td>Society, Environment and Sustainability</td>
</tr>
<tr>
<td>ENVR 202</td>
<td>3</td>
<td>The Evolving Earth</td>
</tr>
<tr>
<td>ENVR 203</td>
<td>3</td>
<td>Knowledge, Ethics and Environment</td>
</tr>
</tbody>
</table>
ENVR 301  (3)  Environmental Research Design
ENVR 400  (3)  Environmental Thought

Core: Complementary Course - Senior Research Project (3 credits)
Only 3 credits will be applied to the program; extra credits will count as electives.
AGRI 519  (6)  Sustainable Development Plans
ENVR 401  (3)  Environmental Research
ENVR 451  (6)  Research in Panama

Domain: Complementary Courses (42 credits)
42 credits of complementary courses are selected as follows:
9 credits - Basic Principles of Ecosystem Processes and Diversity
6 credits - 3 credits from each category of Statistics and GIS
6 credits - Advanced Ecosystem Components
6 credits - Advanced Ecological Processes
6 credits - Social Processes
9 credits - Ecosystem Components or Management of Ecosystems

Basic Principles of Ecosystem Processes:
9 credits of basic principles of ecosystem processes and diversity are selected as follows:

One of:
AEBI 210  (3)  Organisms 1
AEBI 211  (3)  Organisms 2
BIOL 305  (3)  Animal Diversity

One of:
BIOL 308  (3)  Ecological Dynamics
ENVB 305  (3)  Population & Community Ecology

One of:
ENVB 210  (3)  The Biophysical Environment
GEOG 305  (3)  Soils and Environment

Statistics
One of:
AEMA 310  (3)  Statistical Methods 1
BIOL 373  (3)  Biometry

GIS Methods
One of:
ENVB 430  (3)  GIS for Natural Resource Management
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 201</td>
<td>3</td>
<td>Introductory Geo-Information Science</td>
</tr>
</tbody>
</table>

**Advanced Ecosystem Components:**

6 credits of advanced ecosystem components selected from:

- BIOL 553 (3) Neotropical Environments
- GEOG 372 (3) Running Water Environments
- PLNT 358 (3) Flowering Plant Diversity
- SOIL 326 (3) Soils in a Changing Environment
- WILD 307 (3) Natural History of Vertebrates

**Advanced Ecological Processes:**

6 credits of advanced ecological processes selected from:

* Note: you may take BIOL 432 or ENVB 315, but not both; you can take BREE 217 or GEOG 322, but not both.

- BIOL 432* (3) Limnology
- BIOL 465 (3) Conservation Biology
- BREE 217* (3) Hydrology and Water Resources
- ENVB 315* (3) Science of Inland Waters
- ENVB 410 (3) Ecosystem Ecology
- GEOG 322* (3) Environmental Hydrology
- MICR 331 (3) Microbial Ecology
- NRSC 333 (3) Pollution and Bioremediation
- PLNT 460 (3) Plant Ecology

**Social Processes:**

6 credits of social processes selected as follows:

* If WILD 415 is taken, 1 additional credit of complementary courses must be taken.

** Note: you may take AGEC 333 and ECON 405, but not both.

- AGEC 242 (3) Management Theories and Practices
- AGEC 333** (3) Resource Economics
- ANTH 339 (3) Ecological Anthropology
- CANS 407 (3) Regions of Canada
- ECON 405** (3) Natural Resource Economics
- GEOG 382 (3) Principles Earth Citizenship
- GEOG 498 (3) Humans in Tropical Environments
- RELG 270 (3) Religious Ethics and the Environment
- SOCI 565 (3) Social Change in Panama
- URBP 520 (3) Globalization: Planning and Change
- WILD 415* (2) Conservation Law

**Ecosystem Components or Management of Ecosystems:**

9 credits of ecosystem components or management of ecosystems selected from:

- AGRI 435 (3) Soil and Water Quality Management
AGRI 452 (3) Water Resources in Barbados
AGRI 550 (3) Sustained Tropical Agriculture
ENVB 437 (3) Assessing Environmental Impact
GEOG 302 (3) Environmental Management 1
GEOG 380 (3) Adaptive Environmental Management
GEOG 404 (3) Environmental Management 2
PLNT 300 (3) Cropping Systems
SOIL 335 (3) Soil Ecology and Management
WILD 401 (4) Fisheries and Wildlife Management
WOOD 441 (3) Integrated Forest Management

Revision, August 2011. End of revision.

7.11.7 Water Environments and Ecosystems Domain

This domain is open only to students in the B.Sc.(Ag.Env.Sc.) Major Environment or B.Sc. Major Environment programs.

Water Environments and Ecosystems – Biological

<table>
<thead>
<tr>
<th>Adviser</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Kathy Roulet</td>
<td>Professor Brian Leung</td>
</tr>
<tr>
<td>Email: <a href="mailto:kathy.roulet@mcgill.ca">kathy.roulet@mcgill.ca</a></td>
<td>Email: <a href="mailto:brian.leung2@mcgill.ca">brian.leung2@mcgill.ca</a></td>
</tr>
<tr>
<td>Telephone: 514-398-4306</td>
<td>Telephone: 514-398-6460</td>
</tr>
</tbody>
</table>

Water Environments and Ecosystems – Physical

<table>
<thead>
<tr>
<th>Adviser</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Kathy Roulet</td>
<td>Professor Nigel Roulet</td>
</tr>
<tr>
<td>Email: <a href="mailto:kathy.roulet@mcgill.ca">kathy.roulet@mcgill.ca</a></td>
<td>Email: <a href="mailto:nigel.roulet@mcgill.ca">nigel.roulet@mcgill.ca</a></td>
</tr>
<tr>
<td>Telephone: 514-398-4306</td>
<td>Telephone: 514-398-4945</td>
</tr>
</tbody>
</table>

7.11.7.1 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) - Major Environment - Water Environments and Ecosystems - Biological (60 credits)

This concentration (60 credits including core) is open only to students in the B.Sc.(Ag.Env.Sc.) Major in Environment or B.Sc. Major in Environment program.

To educate students in both the ecological and physical facets of the water environment, this domain offers two concentrations, with students choosing one or the other.

Those electing the Biological concentration will focus on the mechanisms regulating the different forms of life in water bodies. They will acquire, as well, a good understanding of the physical mechanisms controlling water properties. Students interested in studying the transport and transformation mechanisms of water on the planet, from rivers to the oceans and atmosphere, will select the Physical concentration. They will acquire, as well, a solid background in the biological processes taking place in water bodies.

Graduates of this domain are qualified to enter the work force or to pursue advanced studies in fields such as marine biology, geography, physical oceanography, and atmospheric science.

Suggested First Year (U1) Courses

For suggestions of courses to take in your first year (U1), you can consult the "MSE Student Handbook 2011-2012" available on the MSE website (http://www.mcgill.ca/mse), or contact Ms. Kathy Roulet, Program Adviser (kathy.roulet@mcgill.ca).

Program Requirements

Note: Students are required to take a maximum of 30 credits at the 200 level and a minimum of 12 credits at the 400 level or higher in this program. This includes core and required courses.
Location Note: When planning your schedule and registering for courses, you should verify where each course is offered because courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

Core: Required Courses (18 credits)

Location Note: Core required courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVR 200</td>
<td>3</td>
<td>The Global Environment</td>
</tr>
<tr>
<td>ENVR 201</td>
<td>3</td>
<td>Society, Environment and Sustainability</td>
</tr>
<tr>
<td>ENVR 202</td>
<td>3</td>
<td>The Evolving Earth</td>
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<tr>
<td>ENVR 203</td>
<td>3</td>
<td>Knowledge, Ethics and Environment</td>
</tr>
<tr>
<td>ENVR 301</td>
<td>3</td>
<td>Environmental Research Design</td>
</tr>
<tr>
<td>ENVR 400</td>
<td>3</td>
<td>Environmental Thought</td>
</tr>
</tbody>
</table>

Core: Complementary Course - Senior Research Project (3 credits)

Only 3 credits will be applied to the program; extra credits will count as electives.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 519</td>
<td>6</td>
<td>Sustainable Development Plans</td>
</tr>
<tr>
<td>ENVR 401</td>
<td>3</td>
<td>Environmental Research</td>
</tr>
<tr>
<td>ENVR 451</td>
<td>6</td>
<td>Research in Panama</td>
</tr>
</tbody>
</table>

Domain: Required Courses (6 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATOC 214</td>
<td>3</td>
<td>Introduction: Physics of the Atmosphere</td>
</tr>
<tr>
<td>ATOC 215</td>
<td>3</td>
<td>Oceans, Weather and Climate</td>
</tr>
</tbody>
</table>

Domain: Complementary Courses (33 credits)

33 credits of complementary courses are selected as follows:

- 6 credits - Hydrology/Water Resources, Population/Community and Ecology
- 3 credits - Math and Statistics
- 3 credits - Field Course
- 3 credits - Social Sciences and Policy
- 18 credits chosen in total from List A and List B

Hydrology/Water Resources, Population/Community and Ecology:

6 credits selected as follows:

One of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BREE 217</td>
<td>3</td>
<td>Hydrology and Water Resources</td>
</tr>
<tr>
<td>GEOG 322</td>
<td>3</td>
<td>Environmental Hydrology</td>
</tr>
</tbody>
</table>

And one of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 308</td>
<td>3</td>
<td>Ecological Dynamics</td>
</tr>
<tr>
<td>ENVB 305</td>
<td>3</td>
<td>Population &amp; Community Ecology</td>
</tr>
</tbody>
</table>

Math and Statistics:

One of:

* Note: AEMA 310 or equivalent

AEMA 202 (3) Intermediate Calculus
AEMA 310* (3) Statistical Methods 1
MATH 203 (3) Principles of Statistics 1
MATH 222 (3) Calculus 3

Field Course:
3 credits selected from the following courses or an equivalent Aquatic Field course:

AGRI 452 (3) Water Resources in Barbados
BIOL 331 (3) Ecology/Behaviour Field Course
GEOG 495 (3) Field Studies - Physical Geography

Social Sciences and Policy:
One of:

AGEC 333 (3) Resource Economics
ANTH 339 (3) Ecological Anthropology
ANTH 418 (3) Environment and Development
ECON 225 (3) Economics of the Environment
ECON 326 (3) Ecological Economics
GEOG 404 (3) Environmental Management 2
GEOG 498 (3) Humans in Tropical Environments
POLI 345 (3) International Organizations
POLI 466 (3) Public Policy Analysis
SOCI 565 (3) Social Change in Panama
URBP 520 (3) Globalization: Planning and Change

18 credits chosen in total from List A and List B as follows:

List A
9-12 credits chosen from:

* Note: you may take BIOL 540 or ENVR 540, but not both; you may take ENVB 210 or GEOG 305, but not both; you may take BIOL 432 or ENVB 315, but not both.

AGRI 435 (3) Soil and Water Quality Management
BIOL 342 (3) Marine Biology
BIOL 432* (3) Limnology
BIOL 441 (3) Biological Oceanography
BIOL 465 (3) Conservation Biology
BIOL 540* (3) Ecology of Species Invasions
BIOL 553 (3) Neotropical Environments
BIOL 570 (3) Advanced Seminar in Evolution
ENTO 535 (3) Aquatic Entomology
ENVB 210* (3) The Biophysical Environment
ENVB 315* (3) Science of Inland Waters
List B

6-9 credits chosen from:

* Note: you may take ATOC 219 or CHEM 219, but not both; you may take ATOC 419 or CHEM 419, but not both; you may take ENVB 430 or GEOG 201, but not both; CHEM 287 and CHEM 297 must be taken together.

ATOC 219*  (3)  Introduction to Atmospheric Chemistry
ATOC 419*  (3)  Advances in Chemistry of Atmosphere
CHEM 219*  (3)  Introduction to Atmospheric Chemistry
CHEM 287*  (2)  Introductory Analytical Chemistry
CHEM 297*  (1)  Introductory Analytical Chemistry Laboratory
CHEM 419*  (3)  Advances in Chemistry of Atmosphere
ENVB 430*  (3)  GIS for Natural Resource Management
EPSC 220  (3)  Principles of Geochemistry
GEOG 201*  (3)  Introductory Geo-Information Science
GEOG 308  (3)  Principles of Remote Sensing
GEOG 372  (3)  Running Water Environments
GEOG 522  (3)  Advanced Environmental Hydrology
GEOG 537  (3)  Advanced Fluvial Geomorphology
GEOG 550  (3)  Historical Ecology Techniques

7.11.7.2 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) - Major Environment - Water Environments and Ecosystems - Physical (63 credits)

This concentration (60 credits including core) is open only to students in the B.Sc.(Ag.Env.Sc.) Major in Environment or B.Sc. Major in Environment program.

To educate students in both the ecological and physical facets of the water environment, this domain offers two concentrations, with students choosing one or the other.

Students interested in studying the transport and transformation mechanisms of water on the planet, from rivers to the oceans and atmosphere, will select the Physical concentration. They will acquire, as well, a solid background in the biological processes taking place in water bodies. Those electing the Biological concentration will focus on the mechanisms regulating the different forms of life in water bodies. They will acquire, as well, a good understanding of the physical mechanisms controlling water properties.

Graduates of this domain are qualified to enter the work force or to pursue advanced studies in fields such as marine biology, geography, physical oceanography and atmospheric science.

Suggested First Year (U1) Courses

For suggestions on courses to take in your first year (U1), you can consult the "MSE Student Handbook 2011-2012" available on the MSE website (http://www.mcgill.ca/mse), or contact Ms. Kathy Roulet, the Program Adviser (kathy.roulet@mcgill.ca).

Program Requirements

Note: Students are required to take a maximum of 30 credits at the 200 level and a minimum of 12 credits at the 400 level or higher in this program. This includes core and required courses.
Location Note: When planning your schedule and registering for courses, you should verify where each course is offered because courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

Core: Required Courses (18 credits)
Location Note: Core required courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.

<table>
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<td>Environmental Research Design</td>
</tr>
<tr>
<td>ENVR 400</td>
<td>3</td>
<td>Environmental Thought</td>
</tr>
</tbody>
</table>

Core: Complementary Course - Senior Research Project (3 credits)
Note: Only 3 credits will be applied to the program; extra credits will count as electives.

<table>
<thead>
<tr>
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<td>ENVR 401</td>
<td>3</td>
<td>Environmental Research</td>
</tr>
<tr>
<td>ENVR 451</td>
<td>6</td>
<td>Research in Panama</td>
</tr>
</tbody>
</table>

Domain: Required Courses (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATOC 214</td>
<td>3</td>
<td>Introduction: Physics of the Atmosphere</td>
</tr>
<tr>
<td>ATOC 215</td>
<td>3</td>
<td>Oceans, Weather and Climate</td>
</tr>
<tr>
<td>ATOC 315</td>
<td>3</td>
<td>Thermodynamics and Convection</td>
</tr>
<tr>
<td>GEOG 372</td>
<td>3</td>
<td>Running Water Environments</td>
</tr>
</tbody>
</table>

Domain: Complementary Courses (30 credits)
30 credits of complementary courses are selected as follows:
6 credits - Hydrology/Water Resources, Population, Community and Ecology
3 credits - Statistics or Calculus
3 credits - Field course
12 credits chosen from List A
6 credits chosen from List B

Hydrology/Water Resources, Population/Community and Ecology
6 credits selected as follows:

One of:
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BREE 217</td>
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<td>Hydrology and Water Resources</td>
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<tr>
<td>GEOG 322</td>
<td>3</td>
<td>Environmental Hydrology</td>
</tr>
</tbody>
</table>

And one of:
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<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 308</td>
<td>3</td>
<td>Ecological Dynamics</td>
</tr>
<tr>
<td>ENVB 305</td>
<td>3</td>
<td>Population &amp; Community Ecology</td>
</tr>
</tbody>
</table>
Statistics or Calculus:

One of:

* Note: AEMA 310 or equivalent.

Note: Credit given for Statistics courses is subject to certain restrictions. Students in Science should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Science.

AEMA 202 (3) Intermediate Calculus
AEMA 310* (3) Statistical Methods 1
MATH 203 (3) Principles of Statistics 1
MATH 222 (3) Calculus 3

Field Course:

3 credits selected from the following courses or an equivalent Aquatic Field course:

AGRI 452 (3) Water Resources in Barbados
GEOG 495 (3) Field Studies - Physical Geography

List A:

12 credits chosen from:

AGRI 435 (3) Soil and Water Quality Management
ATOC 309 (3) Weather Radars and Satellites
ATOC 568 (3) Ocean Physics
BREE 416 (3) Engineering for Land Development
CIVE 323 (3) Hydrology and Water Resources
EPSC 549 (3) Hydrogeology
GEOG 201 (3) Introductory Geo-Information Science
GEOG 308 (3) Principles of Remote Sensing
GEOG 537 (3) Advanced Fluvial Geomorphology
NRSC 510 (3) Agricultural Micrometeorology
URBP 520 (3) Globalization: Planning and Change

And/or one of:

AEMA 305 (3) Differential Equations
MATH 315 (3) Ordinary Differential Equations

And/or one of:

BREE 506 (3) Advances in Drainage Management
BREE 509 (3) Hydrologic Systems and Modelling
GEOG 522 (3) Advanced Environmental Hydrology

And/or one of:

ENVB 210 (3) The Biophysical Environment
GEOG 305 (3) Soils and Environment
And/or one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>ENVB 430</td>
<td>(3)</td>
<td>GIS for Natural Resource Management</td>
</tr>
<tr>
<td>GEOG 306</td>
<td>(3)</td>
<td>Raster Geo-Information Science</td>
</tr>
</tbody>
</table>

List B:
6 credits chosen from:

* Note: you can take BIOL 432 or ENVB 315, but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 342</td>
<td>(3)</td>
<td>Marine Biology</td>
</tr>
<tr>
<td>BIOL 432*</td>
<td>(3)</td>
<td>Limnology</td>
</tr>
<tr>
<td>BIOL 441</td>
<td>(3)</td>
<td>Biological Oceanography</td>
</tr>
<tr>
<td>BIOL 465</td>
<td>(3)</td>
<td>Conservation Biology</td>
</tr>
<tr>
<td>BIOL 553</td>
<td>(3)</td>
<td>Neotropical Environments</td>
</tr>
<tr>
<td>ENVB 315*</td>
<td>(3)</td>
<td>Science of Inland Waters</td>
</tr>
<tr>
<td>GEOG 350</td>
<td>(3)</td>
<td>Ecological Biogeography</td>
</tr>
<tr>
<td>GEOG 505</td>
<td>(3)</td>
<td>Global Biogeochemistry</td>
</tr>
<tr>
<td>WILD 401</td>
<td>(4)</td>
<td>Fisheries and Wildlife Management</td>
</tr>
</tbody>
</table>

7.12 **Major in Environment – B.Sc.**

In addition to the domains available to students in the Major program in either the Faculty of Science or the Faculty of Agricultural and Environmental Sciences, “Major in Environment - B.Sc.” students in the Faculty of Science can choose from one of the following two domains:

- Atmospheric Environment and Air Quality, or
- Earth Sciences and Economics.

Refer to *section 7.11: Major in Environment – B.Sc.(Ag.Env.Sc.) and B.Sc.* for the general guidelines and regulations, which apply to all domains in the Major in Environment program.

7.12.1 **Atmospheric Environment and Air Quality Domain**

This domain is open only to students in the B.Sc. Major in Environment program in the Faculty of Science.

<table>
<thead>
<tr>
<th>Adviser</th>
<th>Mentor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ms. Kathy Roulet</td>
<td>Professor Frédéric Fabry</td>
</tr>
<tr>
<td>Email: <a href="mailto:kathy.roulet@mcgill.ca">kathy.roulet@mcgill.ca</a></td>
<td>Email: <a href="mailto:frederic.fabry@mcgill.ca">frederic.fabry@mcgill.ca</a></td>
</tr>
<tr>
<td>Telephone: 514-398-4306</td>
<td>Telephone: 514-398-3652</td>
</tr>
</tbody>
</table>

7.12.1.1 **Bachelor of Science (B.Sc.) - Major Environment - Atmospheric Environment and Air Quality (60 credits)**

The rapid expansion of industrialization has been accompanied by a host of environmental problems, many, if not most, involving the atmosphere. Some problems are of a local nature, such as air pollution in large urban centres, while others are global, or at least reach areas far removed from industrial activities. The emphasis in this domain is on the mechanisms of atmospheric flow and on atmospheric chemistry. Courses examine how the atmosphere transports pollution, lifting it to great heights into the stratosphere or keeping it trapped near the ground, moving it around the globe or imprisoning it locally, or how it simply cleanses itself of the pollution through rainfall. The domain also gives students the training required to understand the important chemical reactions taking place within the atmosphere, as well as the know-how necessary to measure and analyze atmospheric constituents.

**Suggested First Year (U1) Courses**

For suggestions on courses to take in your first year (U1), you can consult the "MSE Student Handbook 2011-2012" available on the MSE website (http://www.mcgill.ca/mse).
Program Requirements

Note: Students are required to take a maximum of 31 credits at the 200 level and a minimum of 12 credits at the 400 level or higher in this program. This includes core and required courses.

Location Note: When planning your schedule and registering for courses, you should verify where each course is offered because courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

Core: Required Courses

Location Note: Core required courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.

ENVR 200 (3) The Global Environment
ENVR 201 (3) Society, Environment and Sustainability
ENVR 202 (3) The Evolving Earth
ENVR 203 (3) Knowledge, Ethics and Environment
ENVR 301 (3) Environmental Research Design
ENVR 400 (3) Environmental Thought

Core: Complementary Course - Senior Research Project (3 credits)

Only 3 credits will be applied to the program; extra credits will count as electives.

AGRI 519 (6) Sustainable Development Plans
ENVR 401 (3) Environmental Research
ENVR 451 (6) Research in Panama

Domain: Required Courses (18 credits)

18 credits are selected from:

* Note: you may take ATOC 219 or CHEM 219, but not both.

ATOC 214 (3) Introduction: Physics of the Atmosphere
ATOC 215 (3) Oceans, Weather and Climate
ATOC 219* (3) Introduction to Atmospheric Chemistry
ATOC 315 (3) Thermodynamics and Convection
CHEM 219* (3) Introduction to Atmospheric Chemistry
CHEM 307 (3) Analytical Chemistry of Pollutants
GEOG 308 (3) Principles of Remote Sensing

Domain: Complementary Courses (21 credits)

21 credits of complementary courses are selected as follows:

6 credits - Analytical Chemistry/Calculus courses
3 credits - Statistics
9 credits - Math or Physical Science
3 credits - Social Science

Analytical Chemistry/Calculus:

One of:

AEMA 202 (3) Intermediate Calculus
MATH 222 (3) Calculus 3
and 3 credits from:

Note: CHEM 287 and CHEM 297 must be taken together.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 287</td>
<td>2</td>
<td>Introductory Analytical Chemistry</td>
</tr>
<tr>
<td>CHEM 297</td>
<td>1</td>
<td>Introductory Analytical Chemistry Laboratory</td>
</tr>
<tr>
<td>FDSC 213</td>
<td>3</td>
<td>Analytical Chemistry 1</td>
</tr>
</tbody>
</table>

**Statistics:**

3 credits of Statistics courses or equivalent from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEMA 310</td>
<td>3</td>
<td>Statistical Methods 1</td>
</tr>
<tr>
<td>MATH 203</td>
<td>3</td>
<td>Principles of Statistics 1</td>
</tr>
</tbody>
</table>

**Math or Physical Science:**

9 credits of Math or Physical Science (at least 6 credits of which are at the 300 level or above):

* Note: you may take ATOC 419 or CHEM 419, but not both; you may take AEMA 305 or MATH 315, but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEMA 305*</td>
<td>3</td>
<td>Differential Equations</td>
</tr>
<tr>
<td>ATOC 309</td>
<td>3</td>
<td>Weather Radars and Satellites</td>
</tr>
<tr>
<td>ATOC 412</td>
<td>3</td>
<td>Atmospheric Dynamics</td>
</tr>
<tr>
<td>ATOC 419*</td>
<td>3</td>
<td>Advances in Chemistry of Atmosphere</td>
</tr>
<tr>
<td>ATOC 540</td>
<td>3</td>
<td>Synoptic Meteorology 1</td>
</tr>
<tr>
<td>CHEE 230</td>
<td>3</td>
<td>Environmental Aspects of Technology</td>
</tr>
<tr>
<td>CHEM 243</td>
<td>2</td>
<td>Introductory Physical Chemistry 2</td>
</tr>
<tr>
<td>CHEM 377</td>
<td>3</td>
<td>Instrumental Analysis 2</td>
</tr>
<tr>
<td>CHEM 419*</td>
<td>3</td>
<td>Advances in Chemistry of Atmosphere</td>
</tr>
<tr>
<td>CIVE 225</td>
<td>4</td>
<td>Environmental Engineering</td>
</tr>
<tr>
<td>COMP 208</td>
<td>3</td>
<td>Computers in Engineering</td>
</tr>
<tr>
<td>GEOG 505</td>
<td>3</td>
<td>Global Biogeochemistry</td>
</tr>
<tr>
<td>MATH 223</td>
<td>3</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 315*</td>
<td>3</td>
<td>Ordinary Differential Equations</td>
</tr>
<tr>
<td>NRSC 333</td>
<td>3</td>
<td>Pollution and Bioremediation</td>
</tr>
<tr>
<td>NRSC 510</td>
<td>3</td>
<td>Agricultural Micrometeorology</td>
</tr>
</tbody>
</table>

**Social Science:**

One of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 206</td>
<td>3</td>
<td>Environment and Culture</td>
</tr>
<tr>
<td>ANTH 418</td>
<td>3</td>
<td>Environment and Development</td>
</tr>
<tr>
<td>ECON 225</td>
<td>3</td>
<td>Economics of the Environment</td>
</tr>
<tr>
<td>ECON 347</td>
<td>3</td>
<td>Economics of Climate Change</td>
</tr>
<tr>
<td>ENVR 465</td>
<td>3</td>
<td>Environment and Social Change</td>
</tr>
<tr>
<td>GEOG 302</td>
<td>3</td>
<td>Environmental Management 1</td>
</tr>
<tr>
<td>GEOG 380</td>
<td>3</td>
<td>Adaptive Environmental Management</td>
</tr>
<tr>
<td>GEOG 404</td>
<td>3</td>
<td>Environmental Management 2</td>
</tr>
</tbody>
</table>
Humans in Tropical Environments (3)  
Public Policy Analysis (3)  
Religious Ethics and the Environment (3)

### Earth Sciences and Economics Domain

This domain is open only to students in the B.Sc. Major Environment program in the Faculty of Science.

**Adviser**  
Ms. Kathy Roulet  
Email: kathy.roulet@mcgill.ca  
Telephone: 514-398-4306

**Mentor**  
Professor Jeanne Paquette  
Email: jeanne.paquette@mcgill.ca  
Telephone: 514-398-4402

### 7.12.2.1 Bachelor of Science (B.Sc.) – Major Environment – Earth Sciences and Economics (66 credits)

**Revision, August 2011. Start of revision.**

The resources necessary for human society are extracted from the Earth, used as raw materials in our factories and refineries, and then returned to the Earth as waste. Geological processes produce resources humans depend on, and they also determine the fate of wastes in the environment. Understanding Earth's geologic processes provides us with the knowledge to mitigate many of our society's environmental impacts due to resource extraction and waste disposal. Additionally, economics frequently affects what energy sources power our society and how our wastes are treated. Earth sciences and economics are essential for our understanding of the many mechanisms, both physical and social, that affect Earth's environment.

This domain includes the fundamentals of each discipline. Students learn of minerals, rocks, soils, and waters and how these materials interact with each other and with the atmosphere. Fundamental economic theory and the economic effects of public policy toward resource industries, methods of waste disposal, and the potential effects of global warming on the global economy are also explored.

**Suggested First Year (U1) Courses**

For suggestions on courses to take in your first year (U1), you can consult the "MSE Student Handbook 2011-2012" available on the MSE website (http://www.mcgill.ca/mse), or contact Kathy Roulet, the Program Adviser (kathy.roulet@mcgill.ca).

**Program Requirements**

Note: Students are required to take a maximum of 34 credits at the 200 level and a minimum of 15 credits at the 400 level or higher in this program. This includes core and required courses.

Location Note: When planning your schedule and registering for courses, you should verify where each course is offered because courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

**Core: Required Courses (18 credits)**

Location Note: Core required courses are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.

- ENVR 200 (3) The Global Environment
- ENVR 201 (3) Society, Environment and Sustainability
- ENVR 202 (3) The Evolving Earth
- ENVR 203 (3) Knowledge, Ethics and Environment
- ENVR 301 (3) Environmental Research Design
- ENVR 400 (3) Environmental Thought

**Core: Complementary Course - Senior Research Project (3 credits)**

Only 3 credits will be applied to the program; extra credits will count as electives.

- AGRI 519 (6) Sustainable Development Plans
- ENVR 401 (3) Environmental Research
Domain: Required Courses (21 credits)

- ECON 230D1 (3) Microeconomic Theory
- ECON 230D2 (3) Microeconomic Theory
- ECON 405 (3) Natural Resource Economics
- EPSC 210 (3) Introductory Mineralogy
- EPSC 212 (3) Introductory Petrology
- EPSC 220 (3) Principles of Geochemistry
- EPSC 455 (3) Sedimentary Geology

Domain: Complementary Courses (24 credits)

24 credits of complementary courses are selected as follows:

- 3 credits - Statistics courses
- 9 credits - List A
- 12 credits - List B

Statistics:

One of the following Statistics courses or equivalent.

Note: Credit given for Statistics courses is subject to certain restrictions. Students in Science should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Science.

- AEMA 310 (3) Statistical Methods 1
- GEOG 202 (3) Statistics and Spatial Analysis
- MATH 203 (3) Principles of Statistics 1

List A:

9 credits from:

- AGE 333 (3) Resource Economics
- ECON 326 (3) Ecological Economics
- ECON 347 (3) Economics of Climate Change
- ECON 416 (3) Topics in Economic Development 2
- ECON 525 (3) Project Analysis
- ENVB 437 (3) Assessing Environmental Impact

List B:

12 credits from:

- AGRI 435 (3) Soil and Water Quality Management
- ANTH 339 (3) Ecological Anthropology
- BIOL 305 (3) Animal Diversity
- BIOL 553 (3) Neotropical Environments
- ECON 305 (3) Industrial Organization
- ECON 313 (3) Economic Development 1
- ECON 314 (3) Economic Development 2
7.13 Honours Program in Environment

Adviser

Ms. Kathy Roulet, MSE Program Adviser
Email: kathy.roulet@mcgill.ca
Telephone: 514-398-4306

This Program is open only to students in the B.Sc. Major in Environment, B.Sc.(Ag.Env.Sc.) Major in Environment, B.A. Faculty Program in Environment, and the B.A. & Sc. Interfaculty Program in Environment.

The Honours Program in Environment offers students the opportunity to undertake a year-long research project in close association with a professor. Honours research provides excellent preparation for graduate studies, but is not required for such studies. The Honours in Environment adds 6 credits of research to the regular Environment program. Since the Honours research is carried out in the final year at the same time as the regular courses, it does not add to the length (duration) of the degree. Students simply have 6 fewer credits of electives. If, for some reason, students cannot complete the Honours requirements, they may still graduate with the regular Environment program.

Bachelor of Arts (B.A.) - Honours Environment (60 credits)

This program is open only to students in the B.A. Faculty Program Environment. To be eligible for Honours, students must satisfy the requirements set by their B.A. degree.

In addition, students must satisfy the following:
1. Students apply for the Honours program in March of their U2 year. See the Program Adviser for details.
2. Applicants must have a minimum Program GPA (GPA of all required and complementary courses for the program in Environment taken at McGill) of 3.3 to enter the Honours program.
3. Students must earn a B grade (3.0) or higher for the Honours Research course (ENVR 495).
4. Students are required to achieve a minimum overall CGPA of 3.0 at graduation, and a minimum Program GPA of 3.3 to obtain Honours.
5. Arts (B.A.) students in the Honours Environment program must also complete a minor concentration in an academic unit other than the McGill School of Environment. Please refer to the Faculty of Arts regulations on Honours programs found under "Faculty Degree Requirements", "About Program Requirements" and "Departmental Programs".
Students in the B.A. Honours programs complete the core and domain courses (54 credits) according to their chosen domain as well as the 6 credits of Honours required courses.

At the completion of your Honours research, you are expected to present your results at an Honours Symposium, and are required to submit a copy of your final report to the MSE Program Adviser.

**Honours Required Courses (6 credits)**

Note: you take either ENVR 495D1 and ENVR 495D2 (6 credits over consecutive terms) or ENVR 495N1 and ENVR 495N2 (6 credits over non-consecutive terms).

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVR 495D1</td>
<td>(3)</td>
<td>Honours Research</td>
</tr>
<tr>
<td>ENVR 495D2</td>
<td>(3)</td>
<td>Honours Research</td>
</tr>
<tr>
<td>ENVR 495N1</td>
<td>(3)</td>
<td>Honours Research</td>
</tr>
<tr>
<td>ENVR 495N2</td>
<td>(3)</td>
<td>Honours Research</td>
</tr>
</tbody>
</table>

### 7.13.2 Bachelor of Science (B.Sc.) - Honours Environment (72 credits)

This program is open only to students in the B.Sc. Major Environment. To be eligible for Honours, students must satisfy the requirements set by their B.Sc. degree.

In addition, students must satisfy the following:
1. Students apply for the Honours program in March of their U2 year. See the Program Adviser for details.
2. Applicants must have a minimum Program GPA (GPA of all required and complementary courses for the program in Environment taken at McGill) of 3.3 to enter the Honours program.
3. Students must earn a B grade (3.0) or higher for the Honours Research course (ENVR 495).
4. Students are required to achieve a minimum overall CGPA of 3.0 at graduation, and a minimum Program GPA of 3.3 to obtain Honours.

Students in the B.Sc. Honours programs complete the core and domain courses (60 to 66 credits) according to their chosen domain as well as the 6 credits of Honours required courses.

At the completion of your Honours research, you are expected to present your results at an Honours Symposium, and are required to submit a copy of your final report to the MSE Program Adviser.

**Honours Required Courses (6 credits)**

Note: you take either ENVR 495D1 and ENVR 495D2 (6 credits over consecutive terms) or ENVR 495N1 and ENVR 495N2 (6 credits over non-consecutive terms).

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVR 495D1</td>
<td>(3)</td>
<td>Honours Research</td>
</tr>
<tr>
<td>ENVR 495D2</td>
<td>(3)</td>
<td>Honours Research</td>
</tr>
<tr>
<td>ENVR 495N1</td>
<td>(3)</td>
<td>Honours Research</td>
</tr>
<tr>
<td>ENVR 495N2</td>
<td>(3)</td>
<td>Honours Research</td>
</tr>
</tbody>
</table>

### 7.13.3 Bachelor of Arts and Science (B.A. & Sc.) - Honours Environment (60 credits)

This program is open only to students in the B.A. & Sc. Interfaculty Program Environment.

To be eligible for Honours, students must satisfy the requirements set by their B.A. & Sc. degree.

In addition, students must satisfy the following:
1. Students apply for the Honours program in March of their U2 year. See the Program Adviser for details.
2. Applicants must have a minimum Program GPA (GPA of all required and complementary courses for the program in Environment taken at McGill) of 3.3 to enter the Honours program.
3. Students must earn a B grade (3.0) or higher for the Honours Research course (ENVR 495).
4. Students are required to achieve a minimum overall CGPA of 3.0 at graduation, and a minimum Program GPA of 3.3 to obtain Honours.
5. B.A. & Sc. students must complete at least 30 credits in the Faculty of Arts and at least 30 in the Faculty of Science as part of their Honours program and their Minor concentration or Minor program. For a list of available Minor concentrations or Minor programs, see "Overview of Programs Offered" and "Minor Concentrations or Minors".

Students in the B.A. & Sc. Honours programs complete the coursework (54 credits) for the Interfaculty Program in Environment as well as the Honours required courses (6 credits).
At the completion of your Honours research, you are expected to present your results at an Honours Symposium, and are required to submit a copy of your final report to the MSE Program Adviser.

**Honours Required Courses (6 credits)**

Note: you take either ENVR 495D1 and ENVR 495D2 (6 credits over consecutive terms) or ENVR 495N1 and ENVR 495N2 (6 credits over non-consecutive terms).

- **ENVR 495D1** (3)  Honours Research
- **ENVR 495D2** (3)  Honours Research
- **ENVR 495N1** (3)  Honours Research
- **ENVR 495N2** (3)  Honours Research

**7.13.4 Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) - Honours Environment (69 credits)**

This program is open only to students in the B.Sc.(Ag.Env.Sc.) Major Environment. To be eligible for Honours, students must satisfy the requirements set by their B.Sc.(Ag.Env.Sc.) degree.

In addition, students must satisfy the following:

1. Students apply for the Honours program in March of their U2 year. See the Program Adviser for details.
2. Applicants must have a minimum Program GPA (GPA of all required and complementary courses for the program in Environment taken at McGill) of 3.3 to enter the Honours program.
3. Students must earn a B grade (3.0) or higher for the Honours Research courses (ENVR 496 and ENVR 497).
4. Students are required to achieve a minimum overall CGPA of 3.0 at graduation, and a minimum Program GPA of 3.3 to obtain Honours.

Students in the B.Sc.(Ag.Env.Sc.) Honours program complete the core and domain courses (60 to 63 credits) according to their chosen domain as well as the 6 credits of required Honours courses.

At the completion of your Honours research, you are expected to present your results at an Honours Symposium, and are required to submit a copy of your final report to the MSE Program Adviser.

**Honours - Required Courses (6 credits)**

- **ENVR 496** (3)  Honours Research Part 1
- **ENVR 497** (3)  Honours Research Part 2

**7.14 Joint Honours Component Environment**

**Revision, August 2011. Start of revision.**

**Adviser**

Ms. Kathy Roulet, MSE Program Adviser  
Email: kathy.roulet@mcgill.ca  
Telephone: 514-398-4306

This program is open only to students in the B.A. Faculty Program in Environment.

The Joint Honours Component Environment offers students the opportunity to undertake a year-long, interdisciplinary research project in their final year in close association with a professor. Honours research provides excellent preparation for graduate studies, but is not required for such studies. If, for some reason, students cannot complete the Joint Honours requirements, they may still graduate with a Minor Concentration Environment.

**Revision, August 2011. End of revision.**

**7.14.1 Bachelor of Arts (B.A.) - Joint Honours Component Environment (36 credits)**

**Revision, August 2011. Start of revision. New program.**

Students wishing to study at the honours level in two disciplines can combine joint honours program components in any two Arts disciplines. For a list of available joint honours programs, see "Overview of Programs Offered" and "Joint Honours Programs".

Joint Honours students should consult an adviser in each department for approval of their course selection and their interdisciplinary honours research project.
Students will enter the Joint Honours at the end of their U1 year, and will be required to maintain a PGPA of 3.30 and an overall CGPA of 3.0. Whereas the Faculty Program Environment Honours requires the student to undertake a Minor as well, the Joint Honours Environment component does not.

This program comprises 36 credits, including: Honours research (6 credits); Environment core (21 credits); statistics (3 credits); and complementary courses (6 credits).

**Program Prerequisites or Corequisites**

The program corequisites (6-8 credits), which are common to the stand-alone Environment Honours program, are in addition to the overall credit account. Students are required to complete these courses by the end of their U1 year.

3 credits of Basic Science, one of the following, or their equivalents (e.g., CEGEP objectives Biology 00UK, Chemistry 00UL, Physics 00UR):

- **Biol 111** (3) Principles: Organismal Biology
- **Chem 110** (4) General Chemistry 1
- **Phys 101** (4) Introductory Physics - Mechanics

And one of the following:

3 credits of Calculus or equivalent (e.g., CEGEP objective 00UN):

- **Math 139** (4) Calculus 1 with Precalculus
- **Math 140** (3) Calculus 1

**Required Courses (27 credits)**

21 credits of Environment core courses as follows:

- **Envr 200** (3) The Global Environment
- **Envr 201** (3) Society, Environment and Sustainability
- **Envr 202** (3) The Evolving Earth
- **Envr 203** (3) Knowledge, Ethics and Environment
- **Envr 301** (3) Environmental Research Design
- **Envr 400** (3) Environmental Thought
- **Envr 401** (3) Environmental Research

And 6 credits of honours research from the following:

Note: you take either **Envr 495D1 and Envr 495D2** (6 credits over consecutive terms) or **Envr 495N1 and Envr 495N2** (6 credits over non-consecutive terms).

- **Envr 495D1** (3) Honours Research
- **Envr 495D2** (3) Honours Research
- **Envr 495N1** (3) Honours Research
- **Envr 495N2** (3) Honours Research

**Complementary Courses (9 credits)**

One of the following Statistics courses or equivalent:

- **Biol 373** (3) Biometry
- **GEOG 202** (3) Statistics and Spatial Analysis
- **Math 203** (3) Principles of Statistics 1
- **Psych 204** (3) Introduction to Psychological Statistics

And 6 credits chosen with approval of the Program Adviser, at least 3 credits of which must be at the 400 level or higher.
Revision, August 2011. End of revision.

7.15 Diploma in Environment

Adviser

Ms. Kathy Roulet, MSE Program Adviser
Email: kathy.roulet@mcgill.ca
Telephone: 514-398-4306

7.15.1 Diploma in Environment (30 credits)

Revision, August 2011. Start of revision.

The Diploma in Environment is designed for students with an undergraduate degree who wish to enrich or reorient their training, supplementing their specialization with additional undergraduate-level course work in Environment.

The diploma requires 30 credits of full-time or part-time studies at McGill; it may be started in either January or September. The diploma is a one-year program if taken full-time.

Students holding a B.Sc. or a B.A. degree or equivalent in good standing will be permitted to register for the diploma through the Faculty of Agricultural and Environmental Sciences, the Faculty of Arts, or the Faculty of Science, provided they are otherwise acceptable for admission to the University.

Advising Note:
Consultation with the Program Adviser for approval of course selection to meet program requirements is obligatory. All courses must be at the 200 level and above, and completed with a grade of C or better.

Location Note:
When planning your schedule and registering for courses, you should verify where each course is offered because courses for this program are taught at both McGill's Downtown campus and at the Macdonald campus in Sainte-Anne-de-Bellevue.

Required Courses (18 credits)
Location Note: The ENVR courses are offered on both campuses. You should register in Section 001 of an ENVR course that you plan to take on the Downtown campus, and in Section 051 of an ENVR course that you plan to take on the Macdonald campus.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENVR 200</td>
<td>The Global Environment</td>
<td>3</td>
</tr>
<tr>
<td>ENVR 201</td>
<td>Society, Environment and Sustainability</td>
<td>3</td>
</tr>
<tr>
<td>ENVR 202</td>
<td>The Evolving Earth</td>
<td>3</td>
</tr>
<tr>
<td>ENVR 203</td>
<td>Knowledge, Ethics and Environment</td>
<td>3</td>
</tr>
<tr>
<td>ENVR 301</td>
<td>Environmental Research Design</td>
<td>3</td>
</tr>
<tr>
<td>ENVR 400</td>
<td>Environmental Thought</td>
<td>3</td>
</tr>
</tbody>
</table>

Complementary Courses (12 credits)
12 credits of complementary courses are selected as follows:

3 credits - must be taken with the approval of the Program Adviser in an area outside of the student's previous degree (e.g., those with a B.A. or equivalent degree must take at least 3 credits in the natural sciences; those with a B.Sc. or equivalent degree must take at least 3 credits in the social sciences). A list of Suggested Courses is given below.

9 credits - must be taken in an area of focus chosen by the student with the approval of the Program Adviser. At least 6 credits must be taken at the 400 level or higher. A list of Suggested Courses is given below.

Suggested Course List
The Suggested Course List is divided into two thematic categories: Social Sciences and Policy; and Natural Sciences and Technology.

Most courses listed at the 300 level and higher have prerequisites. You are urged to prepare your program of study with this in mind.
This list is not meant to be exhaustive. You are also encouraged to examine the course lists of the various domains in the Environment program for other courses that might interest you. Courses not on the Suggested Course List may be included in the diploma with the permission of the Program Adviser.

**Social Sciences and Policy**

* Note: If WILD 415 is taken, 1 additional credit of complementary courses must be taken.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGEC 231</td>
<td>Economic Systems of Agriculture</td>
</tr>
<tr>
<td>AGEC 333</td>
<td>Resource Economics</td>
</tr>
<tr>
<td>AGEC 430</td>
<td>Agriculture, Food and Resource Policy</td>
</tr>
<tr>
<td>AGEC 442</td>
<td>Economics of International Agricultural Development</td>
</tr>
<tr>
<td>AGRI 210</td>
<td>Agro-Ecological History</td>
</tr>
<tr>
<td>AGRI 411</td>
<td>Global Issues on Development, Food and Agriculture</td>
</tr>
<tr>
<td>ANTH 206</td>
<td>Environment and Culture</td>
</tr>
<tr>
<td>ANTH 212</td>
<td>Anthropology of Development</td>
</tr>
<tr>
<td>ANTH 339</td>
<td>Ecological Anthropology</td>
</tr>
<tr>
<td>ANTH 512</td>
<td>Political Ecology</td>
</tr>
<tr>
<td>CIVE 433</td>
<td>Urban Planning</td>
</tr>
<tr>
<td>ECON 205</td>
<td>An Introduction to Political Economy</td>
</tr>
<tr>
<td>ECON 225</td>
<td>Economics of the Environment</td>
</tr>
<tr>
<td>ECON 326</td>
<td>Ecological Economics</td>
</tr>
<tr>
<td>ECON 347</td>
<td>Economics of Climate Change</td>
</tr>
<tr>
<td>ECON 405</td>
<td>Natural Resource Economics</td>
</tr>
<tr>
<td>ENVB 437</td>
<td>Assessing Environmental Impact</td>
</tr>
<tr>
<td>ENVR 201</td>
<td>Society, Environment and Sustainability</td>
</tr>
<tr>
<td>ENVR 203</td>
<td>Knowledge, Ethics and Environment</td>
</tr>
<tr>
<td>ENVR 400</td>
<td>Environmental Thought</td>
</tr>
<tr>
<td>GEOG 200</td>
<td>Geographical Perspectives: World Environmental Problems</td>
</tr>
<tr>
<td>GEOG 210</td>
<td>Global Places and Peoples</td>
</tr>
<tr>
<td>GEOG 216</td>
<td>Geography of the World Economy</td>
</tr>
<tr>
<td>GEOG 221</td>
<td>Environment and Health</td>
</tr>
<tr>
<td>GEOG 300</td>
<td>Human Ecology in Geography</td>
</tr>
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<td>GEOG 301</td>
<td>Geography of Nunavut</td>
</tr>
<tr>
<td>GEOG 302</td>
<td>Environmental Management 1</td>
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<tr>
<td>GEOG 303</td>
<td>Health Geography</td>
</tr>
<tr>
<td>GEOG 370</td>
<td>Protected Areas</td>
</tr>
<tr>
<td>GEOG 382</td>
<td>Principles Earth Citizenship</td>
</tr>
<tr>
<td>GEOG 403</td>
<td>Global Health and Environmental Change</td>
</tr>
<tr>
<td>GEOG 408</td>
<td>Geography of Development</td>
</tr>
<tr>
<td>GEOG 410</td>
<td>Geography of Underdevelopment: Current Problems</td>
</tr>
<tr>
<td>GEOG 508</td>
<td>Resources, People and Power</td>
</tr>
<tr>
<td>GEOG 530</td>
<td>Global Land and Water Resources</td>
</tr>
<tr>
<td>GEOG 551</td>
<td>Environmental Decisions</td>
</tr>
<tr>
<td>MGPO 440</td>
<td>Strategies for Sustainability</td>
</tr>
<tr>
<td>NRSC 221</td>
<td>Environment and Health</td>
</tr>
<tr>
<td>NRSC 512</td>
<td>Water: Ethics, Law and Policy</td>
</tr>
</tbody>
</table>
NRSC 540  (3)  Socio-Cultural Issues in Water
PHIL 230  (3)  Introduction to Moral Philosophy 1
PHIL 237  (3)  Contemporary Moral Issues
PHIL 334  (3)  Ethical Theory
PHIL 343  (3)  Biomedical Ethics
PHIL 348  (3)  Philosophy of Law 1
POLI 211  (3)  Comparative Government and Politics
POLI 212  (3)  Government and Politics - Developed World
POLI 227  (3)  Developing Areas/Introduction
POLI 345  (3)  International Organizations
POLI 445  (3)  International Political Economy: Monetary Relations
POLI 466  (3)  Public Policy Analysis
PSYC 215  (3)  Social Psychology
RELG 270  (3)  Religious Ethics and the Environment
RELG 340  (3)  Religion and the Sciences
RELG 370  (3)  Religion and Human Rights
RELG 376  (3)  Religious Ethics
SOCI 222  (3)  Urban Sociology
SOCI 234  (3)  Population and Society
SOCI 235  (3)  Technology and Society
SOCI 254  (3)  Development and Underdevelopment
SOCI 386  (3)  Contemporary Social Movements
URBP 201  (3)  Planning the 21st Century City
URBP 506  (3)  Environmental Policy and Planning
URBP 530  (3)  Urban Environmental Planning
WILD 415*  (2)  Conservation Law

Natural Sciences and Technology
* Note: you may take LSCI 230 or MIMM 211, but not both; you may take BIOL 432 or ENVB 315, but not both; you may take ENVB 430 or GEOG 201, but not both; you may take BREE 217 or GEOG 322, but not both.

AGRI 340  (3)  Principles of Ecological Agriculture
AGRI 435  (3)  Soil and Water Quality Management
ANSC 326  (3)  Fundamentals of Population Genetics
ANTH 311  (3)  Primate Behaviour and Ecology
ARCH 375  (2)  Landscape
ARCH 377  (3)  Energy, Environment and Buildings
ARCH 378  (3)  Site Usage
ATOC 215  (3)  Oceans, Weather and Climate
BIOL 240  (3)  Monteregean Flora
BIOL 305  (3)  Animal Diversity
BIOL 308  (3)  Ecological Dynamics
BIOL 310  (3)  Biodiversity and Ecosystems
BIOL 342  (3)  Marine Biology
Biol 418  (3)  Freshwater Invertebrate Ecology  
Biol 432*  (3)  Limnology  
Biol 436  (3)  Evolution and Society  
Biol 465  (3)  Conservation Biology  
Bree 217*  (3)  Hydrology and Water Resources  
Bree 322  (3)  Organic Waste Management  
Bree 518  (3)  Bio-Treatment of Wastes  
Btee 502  (3)  Biotechnology Ethics and Society  
Chee 230  (3)  Environmental Aspects of Technology  
Chem 212  (3)  Introductory Organic Chemistry 1  
Chem 281  (3)  Inorganic Chemistry 1  
Chem 462  (3)  Green Chemistry  
Cive 225  (4)  Environmental Engineering  
Cive 323  (3)  Hydrology and Water Resources  
Cive 550  (3)  Water Resources Management  
Ento 340  (3)  Field Entomology  
Envb 210  (3)  The Biophysical Environment  
Envb 301  (3)  Meteorology  
Envb 305  (3)  Population & Community Ecology  
Envb 315*  (3)  Science of Inland Waters  
Envb 410  (3)  Ecosystem Ecology  
Envb 415  (3)  Ecosystem Management  
Envb 430*  (3)  GIS for Natural Resource Management  
Envr 200  (3)  The Global Environment  
Envr 202  (3)  The Evolving Earth  
Epsc 201  (3)  Understanding Planet Earth  
Epsc 233  (3)  Earth and Life History  
Epsc 425  (3)  Sediments to Sequences  
Epsc 549  (3)  Hydrogeology  
Esys 301  (3)  Earth System Modelling  
Geog 200  (3)  Geographical Perspectives: World Environmental Problems  
Geog 201*  (3)  Introductory Geo-Information Science  
Geog 205  (3)  Global Change: Past, Present and Future  
Geog 272  (3)  Earth’s Changing Surface  
Geog 308  (3)  Principles of Remote Sensing  
Geog 321  (3)  Climatic Environments  
Geog 322*  (3)  Environmental Hydrology  
Geog 372  (3)  Running Water Environments  
Geog 470  (3)  Wetlands  
Lsci 230*  (3)  Introductory Microbiology  
Micr 331  (3)  Microbial Ecology  
Mime 308  (3)  Social Impact of Technology  
Mime 320  (3)  Extraction of Energy Resources
<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>MIMM 211*</td>
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<td>Introductory Microbiology</td>
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<tr>
<td>MIMM 314</td>
<td>3</td>
<td>Immunology</td>
</tr>
<tr>
<td>MIMM 323</td>
<td>3</td>
<td>Microbial Physiology</td>
</tr>
<tr>
<td>MIMM 324</td>
<td>3</td>
<td>Fundamental Virology</td>
</tr>
<tr>
<td>NRSC 333</td>
<td>3</td>
<td>Pollution and Bioremediation</td>
</tr>
<tr>
<td>NRSC 340</td>
<td>3</td>
<td>Global Perspectives on Food</td>
</tr>
<tr>
<td>NRSC 384</td>
<td>3</td>
<td>Field Research Project</td>
</tr>
<tr>
<td>NRSC 510</td>
<td>3</td>
<td>Agricultural Micrometeorology</td>
</tr>
<tr>
<td>NRSC 514</td>
<td>3</td>
<td>Freshwater Ecosystems</td>
</tr>
<tr>
<td>PARA 410</td>
<td>3</td>
<td>Environment and Infection</td>
</tr>
<tr>
<td>PARA 515</td>
<td>3</td>
<td>Water, Health and Sanitation</td>
</tr>
<tr>
<td>PLNT 304</td>
<td>3</td>
<td>Biology of Fungi</td>
</tr>
<tr>
<td>PLNT 305</td>
<td>3</td>
<td>Plant Pathology</td>
</tr>
<tr>
<td>PLNT 358</td>
<td>3</td>
<td>Flowering Plant Diversity</td>
</tr>
<tr>
<td>PLNT 426</td>
<td>3</td>
<td>Plant Ecophysiology</td>
</tr>
<tr>
<td>PLNT 460</td>
<td>3</td>
<td>Plant Ecology</td>
</tr>
<tr>
<td>SOIL 300</td>
<td>3</td>
<td>Geosystems</td>
</tr>
<tr>
<td>WILD 421</td>
<td>3</td>
<td>Wildlife Conservation</td>
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</tbody>
</table>

Revision, August 2011. End of revision.

7.16 Field Studies

Field study semesters are available in Africa, Barbados, and Panama. See Field Studies and Study Abroad. > Field Study Semesters and Off-Campus Courses in this publication for details.

8 Field Studies

8.1 Revisions – Field Studies

Field Study Minor

*section 8.8.1: Field Studies – Minor Field Studies (18 credits)*

8.2 Opportunities for Field Study and Study Abroad

Besides the many academic resources McGill offers on campus, there are also unparalleled opportunities to enrich your educational experience through exchange programs, internships, field study programs, and McGill courses taught abroad.

8.3 Study Abroad Options

There are four types of Study Abroad options available:

*section 8.3.1: Bilateral Student Exchanges*
8.3 Bilateral Student Exchanges

Bilateral student exchange agreements are tuition exchange agreements that exist between McGill University and one other institution, which has been reviewed and approved by McGill. McGill University has bilateral agreements in many countries including: Australia, Austria, Belgium, Canada, China, Czech Republic, Denmark, Finland, France, Germany, Hong Kong, Hungary, Ireland, Italy, Japan, Korea, Mexico, the Netherlands, New Zealand, Norway, Russia, Singapore, Spain, Sweden, Switzerland, Thailand, Turkey, the United Kingdom, and the United States. Exchange programs can be university-wide or faculty-specific. Faculty-specific agreements are only open to students in the specified faculty.

The full listing of bilateral partners can be found at www.mcgill.ca/students/international.

8.3.2 CRÉPUQ Exchanges

The Conférence des recteurs et principaux des universités du Québec has established tuition exchange agreements in which all Quebec university students may participate, regardless of whether or not they are Quebec residents. The listing of CRÉPUQ partners is accessible from www.echanges-etudiants.crepuq.qc.ca.

8.3.3 Field Study Semesters and Off-Campus Courses

McGill offers you a chance to put theory into practice through local, regional, and international field study semesters and individual courses. Field studies provide practical experience and a chance to integrate and apply knowledge gained in the classroom. In many cases, field courses can be counted toward major program requirements. You should see your adviser for details.

Field Study Semesters are packages of McGill courses aimed at upper-year students that focus on the physical and social aspects of the environment. They are offered in various regions around the world in the Fall or Winter term. Currently, Field Study Semesters are offered in East Africa (Kenya, Uganda and/or Tanzania; see section 8.4: African Field Study Semester), Barbados (see section 8.5: Barbados Field Study Semester and section 8.6: Barbados Interdisciplinary Tropical Studies Field Semester), and Panama (see section 8.7: Panama Field Study Semester). Enrolment is limited, and application deadlines and costs vary, so you should consult the relevant sections of this publication for details. If you are interested in participating, you should begin planning your courses before the Field Study semester, as some of the field courses require prerequisites.

Students participating in any one of the field study semesters, i.e., the African Field Study Semester, the Barbados Field Study Semester, the Barbados Interdisciplinary Tropical Studies (BITS) Field Study Semester, or the Panama Field Study Semester, may complete the 18-credit Minor in Field Studies. See section 8.8: Field Study Minor for details.

Off-campus McGill courses are also offered to you and sometimes require separate departmental application. The courses are typically offered during the summer months and can be offered in places as varied as Italy, Mexico, or Brazil and in disciplines in Arts, Engineering (including Architecture), Science, Law, or Management. See section 8.13: Off-Campus Courses.

8.3.4 Study Away On Your Own

If you want to study as a Visiting student at a university with which McGill does not have a student exchange agreement, you must consult the Student Affairs Office of your McGill faculty, as well as the Admissions Office of the university to which you are applying regarding application requirements. You would pay tuition to the host institution.

8.4 African Field Study Semester

Website: www.mcgill.ca/africa

Students from other universities are eligible to apply to the McGill CFSIA and must also meet the criteria for admission to McGill as a Visiting Student. Please see the AFSS website for details.

The AFSS comprises 15 credits of field study courses. Two courses (6 credits) in the natural and social sciences provide interdisciplinary academic context for field study. The other 9 credits are taken from the complementary courses list.

Visit the AFSS website www.mcgill.ca/africa, or go to www.mcgill.ca/study (Programs, Courses and University Regulations) in July for details of program updates.

Offered: Winter term
Location: East Africa
Enrolment Limit: 38 students

Fees: In addition to the regular McGill fees, students will be required to pay the additional costs associated with delivering the courses in the field. These costs include airfare, local travel, all food and accommodation, special admission fees for parks and museums, as well as other field costs. Airfares and
currency fluctuation will determine the amount of this charge. The 2011 trip cost is CAD$12,250. The actual cost for 2012 will be determined by September 2011.

Quebec residents may be eligible for a financial subsidy from the Ministère de l’Éducation, du Loisir et du Sport (MELS), see www.mcgill.ca/studentaid/exchangefunding for details.

Students can apply to the Mobility Award. See the website for details: www.mcgill.ca/students/international/financialsupport/mobility.

**Application Deadline:** April 29, 2011. Depending on space, there will be a second intake with a deadline date of November 1, 2011.

**Application Details:** Students must submit the CFSIA application (available on the AFSS website), a copy of their transcript, a letter of intent, and two reference letters to Martine Dolmière in the Faculty of Science, Dawson Hall, Room 408. See the website for details: www.mcgill.ca/africa/application.

**Prerequisites:** The AFSS is intended for students in their final two years. A CGPA of 3.00 and higher is recommended.

For more information and course lists, see section 8.8.1: Field Studies – Minor Field Studies (18 credits).

### 8.5 Barbados Field Study Semester

**Website:** www.mcgill.ca/bfss

**Offered:** Fall term

**Location:** Bellairs Research Institute in Barbados

**Enrolment Limit:** 27 students

**Fees:** In addition to the regular McGill fees, students will be required to pay the additional costs associated with delivering the courses in the field. These costs include airfare, accommodation, and most food, as well as other field costs. Fees for 2009 were CAD$6,750; this does not include airfare.

Quebec residents may be eligible for a Travel (Mobility) Award from the Québec Ministère de l’Éducation, du Loisir et du Sport (MELS); see www.mcgill.ca/studentaid/travelawards for details.

**Application Deadline:** March 14, 2012

**Application Details:** Students must submit a letter of intent, a CV, and a copy of their transcript to the Department of Bioresource Engineering, c/o susan.gregus@mcgill.ca. Further details are available at www.mcgill.ca/bfss.

**Prerequisites:** None

For more information and course lists, see section 8.8.1: Field Studies – Minor Field Studies (18 credits).

### 8.6 Barbados Interdisciplinary Tropical Studies Field Semester

**Website:** www.mcgill.ca/bits

**Offered:** Summer term

**Location:** Bellairs Research Institute in Barbados

**Enrolment Limit:** 22 students

**Fees:** In addition to the regular McGill fees, students will be required to pay the additional costs associated with delivering the courses in the field. These costs include accommodation and most food, as well as other field costs. Fees for 2012 are CAD$7,000 (on campus) and CAD$4,000 (off campus); this does not include airfare.

McGill students are eligible for a Mobility Award; see www.mcgill.ca/studentaid/travelawards for details or contact the Scholarships and Student Aid Office (SSAO) at mobilityaward@mcgill.ca.

**Application Deadline:** January 16, 2012 for Summer 2012. Depending on space, there will be a second intake with a deadline date of February 27, 2012.

**Application Details:** Students must submit a letter of intent, a CV, and a copy of their transcript to the Department of Plant Science, c/o carolyn.bowes@mcgill.ca. Further details are available at www.mcgill.ca/bits.

**Prerequisites:** None

For more information and course lists, see section 8.8.1: Field Studies – Minor Field Studies (18 credits).

### 8.7 Panama Field Study Semester

**Website:** www.mcgill.ca/pfss

**Offered:** Winter term

**Location:** Smithsonian Tropical Research Institute (STRI) in Panama
Enrolment Limit: 26 students

Fees: Students will be required to pay the additional costs associated with delivering the courses in the field. The cost of the program is approximately CAD$4,500 (subject to change). This amount does not include airfare, tuition, insurance, or food. A CAD$1,000 deposit is required and is non-refundable. Quebec residents may be eligible for a financial subsidy from the Ministère de l’Éducation, du Loisir et du Sport (MELS), see www.mcgill.ca/studentaid/exchangefunding for details.

Students can apply to the Mobility Award, see website for details: www.mcgill.ca/students/international/financialsupport/mobility

Application Deadline: March 25, 2011 for January 2012 (Winter term of the academic year 2011-12)

Application Details: Students must submit a letter of intent, CV, and copy of their transcript to: Martine Dolmière, in the Faculty of Science, Dawson Hall, Room 408. See the website for details: www.mcgill.ca/pfss/application.

Prerequisites: HISP 218 Spanish Language Elementary or equivalent proficiency, and MATH 203 Principles of Statistics 1 or equivalent. A CGPA of 3.00 and higher is recommended. The program is aimed at undergraduate students in their final year.

For more information and course lists, see section 8.8.1: Field Studies – Minor Field Studies (18 credits).

8.8 Field Study Minor

Field Study Coordinator:
Martine Dolmière (martine.dolmiere@mcgill.ca)
Faculty of Science, Dawson Hall, Room 408

Field Study Minor Adviser (Faculty of Science):
Ryan Bouma (ryan.bouma@mcgill.ca)
Faculty of Science, Dawson Hall, Room 405

8.8.1 Field Studies – Minor Field Studies (18 credits)

Revision, August 2011. Start of revision.

Students participating in any one of the field study semesters, i.e., the African Field Study Semester, the Barbados Field Study Semester, the Barbados Interdisciplinary Tropical Studies (BITS) Field Study Semester, or the Panama Field Study Semester may complete the 18-credit Minor in Field Studies.

The Minor consists of the 15 credits of a field study semester plus three additional complementary credits chosen by the student in consultation with their departmental adviser and/or the Field Study Minor adviser.

For students in the B.Sc. Liberal Program, the Field Studies Minor can serve as the breadth component.

Program descriptions for each of the field study semesters are provided below.

Note: The field study semesters are not degree programs. Credits may be counted toward McGill degrees with the permission of program advisers. Students who complete a field study semester may consult the Field Study Minor adviser about completing the Minor program as part of their McGill degree.

African Field Study Semester (15 credits)

The African Field Study Semester (AFSS) is run through McGill's Canadian Field Study in Africa Program (CFSIA).

The AFSS provides one term of integrated field study in East Africa, with emphasis on environmental conservation, culture change, and sustainable development. Students investigate challenges of sustaining biological diversity and social justice in African environments subject to cultural change, economic development, and environmental stress. Cultural and ecological variation is examined in highland, montane, rangeland, desert, riverine, salt- and fresh-water lake, coastal, and urban settings.

African Field Study Semester - Required Courses

6 credits

Students select one course titled "Research in Society and Development in Africa" and one course titled "Research in Ecology and Development in Africa" from the courses below.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 451</td>
<td>3</td>
<td>Research in Society and Development in Africa</td>
</tr>
<tr>
<td>BIOL 451</td>
<td>3</td>
<td>Research in Ecology and Development in Africa</td>
</tr>
<tr>
<td>GEOG 451</td>
<td>3</td>
<td>Research in Society and Development in Africa</td>
</tr>
<tr>
<td>NRSC 451</td>
<td>3</td>
<td>Research in Ecology and Development in Africa</td>
</tr>
</tbody>
</table>

African Field Study Semester - Complementary Courses
9 credits from:
* Note: Courses marked with an asterisk ("*") are offered on a rotational basis, at least 3 credits annually.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANTH 411</td>
<td>3</td>
<td>Primate Studies &amp; Conservation</td>
</tr>
<tr>
<td>ANTH 416</td>
<td>3</td>
<td>Environment/Development: Africa</td>
</tr>
<tr>
<td>BIOL 428</td>
<td>3</td>
<td>Biological Diversity in Africa</td>
</tr>
<tr>
<td>BIOL 429</td>
<td>3</td>
<td>East African Ecology</td>
</tr>
<tr>
<td>GEOG 404*</td>
<td>3</td>
<td>Environmental Management 2</td>
</tr>
<tr>
<td>GEOG 408</td>
<td>3</td>
<td>Geography of Development</td>
</tr>
<tr>
<td>GEOG 423</td>
<td>3</td>
<td>Dilemmas of Development</td>
</tr>
<tr>
<td>HIST 413</td>
<td>3</td>
<td>Independent Research</td>
</tr>
<tr>
<td>NRSC 405</td>
<td>3</td>
<td>Natural History of East Africa</td>
</tr>
<tr>
<td>NUTR 403*</td>
<td>3</td>
<td>Nutrition in Society</td>
</tr>
<tr>
<td>REDM 405</td>
<td>3</td>
<td>Natural History of East Africa</td>
</tr>
<tr>
<td>WILD 420*</td>
<td>3</td>
<td>Ornithology</td>
</tr>
</tbody>
</table>

**Barbados Field Study Semester (15 credits)**

The Barbados Field Study Semester (BFSS) provides one term of integrated field study for students with an interest in global issues related to natural resource use as affected by socio-economic, management, urban, and physical constraints. Offered at the Bellairs Research Institute in Barbados, this program challenges students to be more effective environmental decision makers, policy makers, and managers. There is a growing need for professionals with such skills at all levels of government, within NGOs, and in the private sector. The overall goal of the BFSS is to equip future leaders to address the complexity of issues associated with the formulation and implementation of organizational strategies compatible with the societal goal of sustainable use and development of our natural resources.

The BFSS is intended for senior undergraduate students from across the University. Students must apply to participate in the program. Selection will be based on the student's Academic Standing and demonstrated interests and involvement in international issues related to natural resource use.

**Barbados Field Study Semester - Required Courses**

6 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>URBP 507</td>
<td>3</td>
<td>Planning and Infrastructure</td>
</tr>
<tr>
<td>URBP 520</td>
<td>3</td>
<td>Globalization: Planning and Change</td>
</tr>
</tbody>
</table>

**Barbados Field Study Semester - Complementary Courses**

9 credits

Students select one 3-credit course titled "Water Resources in Barbados" and one 6-credit course titled "Sustainable Development Plans" from the list below.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 452</td>
<td>3</td>
<td>Water Resources in Barbados</td>
</tr>
<tr>
<td>AGRI 519</td>
<td>6</td>
<td>Sustainable Development Plans</td>
</tr>
<tr>
<td>CIVE 452</td>
<td>3</td>
<td>Water Resources in Barbados</td>
</tr>
<tr>
<td>CIVE 519</td>
<td>6</td>
<td>Sustainable Development Plans</td>
</tr>
<tr>
<td>URBP 519</td>
<td>6</td>
<td>Sustainable Development Plans</td>
</tr>
</tbody>
</table>

**Barbados Interdisciplinary Tropical Studies Field Semester (15 credits)**

The Barbados Interdisciplinary Tropical Studies (BITS) Field Semester is an activity-filled, hands-on experience for students with an interest in international studies with a Caribbean flavour. The focus is on sustainable agri-food, nutrition, and energy production on a tropical island with a tourist-based economy. It is offered annually (in the Summer). It consists of two 2-hour orientation sessions conducted on the Macdonald campus and at the Bellairs Research Institute in Barbados, followed by three 3-credit and one 6-credit project courses at Bellairs Research Institute. This program integrates intensive course work with group project work and contributes to the formation of professionals with planning, managing, decision-making, and communication skills. The program addresses a global need for experienced professionals capable of interacting with various levels of government, non-governmental organizations, and the private sector. BITS welcomes applications from senior undergraduate students from across the University.
Barbados Interdisciplinary Tropical Studies Field Semester - Required Courses
15 credits
AEBI 421 (3) Tropical Horticultural Ecology
AEBI 423 (3) Sustainable Land Use
AEBI 425 (3) Tropical Energy and Food
AEBI 427 (6) Barbados Interdisciplinary Project

Panama Field Study Semester (15 credits)
This program is offered in Panama with the support of the Smithsonian Tropical Research Institute (STRI).
Hands-on experience is gained through research projects organized around multidisciplinary environmental issues. The nature of these projects will centre on practical environmental problems/questions important for Panama. Students will form teams that will work with Panamanian institutions (NGO, governmental, or research).
There is a one- or two-day period of transition and 13 weeks of course attendance in Panama. Field trips will be integrated into each of the courses offered.

Panama Field Study Semester - Required Courses
9 credits
BIOL 553 (3) Neotropical Environments
ENVR 451 (6) Research in Panama

Panama Field Study Semester - Complementary Courses
6 credits
Complementary courses change from year to year. Students will register for the 6 credits offered the Winter of their participation in the field study semester.
Winter 2011 complementary courses:
AGRI 550 (3) Sustained Tropical Agriculture
HIST 510 (3) Environmental History of Latin America (Field)

Winter 2012 complementary courses:
GEOG 404 (3) Environmental Management 2
GEOG 498 (3) Humans in Tropical Environments

Minor Field Studies - Complementary Course
In consultation with their departmental adviser and/or the Field Study Minor adviser, students who have completed one of the field study semesters described above may select a 3-credit complementary course to complete the requirements for the Minor and ask for it to be added to their academic records.

Revision, August 2011. End of revision.

8.9 Exchange Programs
McGill students can study on exchange while paying McGill tuition and earning credits toward their McGill degree.

8.9.1 Eligibility
Student exchange programs are open to McGill students of all nationalities. To participate, applicants must be currently registered as full-time, degree-seeking McGill students, meet the criteria of their faculty at McGill, and have a minimum CGPA of 3.0. Applicants must have completed at least one year of full-time study by the start of the exchange. Students can participate in exchanges for one term or for a full academic year (two terms).
The annual Study Abroad Fair will be held on Wednesday, October 5, 2011. Please check [www.mcgill.ca/students/international](http://www.mcgill.ca/students/international) for up-to-date information on the Study Abroad Fair.

### 8.9.2 Applying for an Exchange

Applications must be submitted on Minerva. Complete application details are found on the Student Exchanges and Study Abroad (SESA) website: [www.mcgill.ca/students/international](http://www.mcgill.ca/students/international).

#### 8.9.2.1 Deadlines

All deadlines regarding student exchanges are available at [www.mcgill.ca/students/international/studyabroad](http://www.mcgill.ca/students/international/studyabroad). Your Faculty Approval deadline to participate in an exchange is in mid-January. The Faculty of Law has an earlier deadline. The deadline to submit the supporting documents (if required) for an application to participate in a student exchange for one or two terms of the 2012-2013 academic year is also available on the website.

Detailed information on the application process and deadlines is contained on the Student Exchanges and Study Abroad (SESA) website: [www.mcgill.ca/students/international](http://www.mcgill.ca/students/international).

#### 8.9.2.2 Bilateral or CRÉPUQ

If a university appears on both the Bilateral and CRÉPUQ listings of exchange partners, you must apply under the bilateral agreement.

### 8.9.3 Awards and Financial Assistance

Awards and financial assistance are available to students to help with the cost of participating in an exchange. Information on application deadlines and eligibility can be found at [www.mcgill.ca/students/international](http://www.mcgill.ca/students/international) and in this publication.

#### 8.9.3.1 Financial Support

Financial support is available for eligible candidates. Information on available financial support can be found on the Student Exchanges and Study Abroad (SESA) website: [www.mcgill.ca/students/international](http://www.mcgill.ca/students/international). Questions may be directed to servicepoint@mcgill.ca.

#### 8.9.3.2 Universitas 21 Transportation Stipends

A limited number of Universitas 21 Transportation Stipends are available for McGill students who apply and are accepted to participate in a student exchange with one of McGill University's Universitas 21 partners.

For more information, see section 8.10.2: Universitas 21.

#### 8.9.3.3 McGill Scholarships and Awards

For students who are pursuing an approved program of study, renewable scholarships and awards may be retained for up to one year while on exchange. However, they will not be eligible for McGill's yearly in-course awards.

### 8.10 Financial Assistance

Students participating in an official McGill University exchange program are eligible to apply for government student assistance as a McGill student, but are not eligible for McGill Student Aid. Students who "study away on their own" are not eligible to receive government student loans through McGill because they are not registered at McGill. Students should verify with the institution they will be attending whether or not they will be eligible to receive government student assistance.

#### 8.10.1 Transfer of Credits from Host Institution

Grades received from the host institution do not appear on the McGill transcript nor are they calculated in the McGill CGPA. The McGill transcript includes a notation of participation in an exchange, the number of transfer credits granted by McGill, and where applicable, McGill course exemptions.

The transfer of credits process must be initiated by the student immediately upon return from exchange with the faculty Student Affairs office, and be completed no later than four months after the exchange.

Before leaving the host institution, students should order two (2) copies of the official transcript for their files, and ensure that the institution sends an official version of the transcript to Student Exchanges and Study Abroad at McGill.

#### 8.10.2 Universitas 21

The Universitas 21 Consortium is an international network of leading research-intensive universities whose objective is to assist members' plans for internationalization, particularly in facilitating student exchanges and short-term research visits. McGill University currently has bilateral student exchange agreements with the following institutions within the U21 Consortium:
The Killam Fellowships Program

McGill University participates in The Killam Fellowships Program, which provides exceptional undergraduate students from universities in Canada and the United States with the opportunity to study in the neighbouring country for either one semester or for a full academic year. Established in 2002 through a partnership between the Foundation for Educational Exchange between Canada and the United States of America and the American Killam Trusts, the goal of the program is to increase mutual understanding between Canada and the United States through academic exchange.

Further Information

Additional details regarding study abroad, including application procedures, deadlines, eligibility criteria, travel awards, etc., are on the Student Exchanges and Study Abroad (SESA) website: [www.mcgill.ca/students/international](http://www.mcgill.ca/students/international).

Student Exchanges and Study Abroad (SESA)
Telephone: 514-398-7878
Email: servicepoint@mcgill.ca

Internships and Co-op Programs

For information on internships and co-op programs, see University Regulations and Information > Internships and Co-op Programs.

Off-Campus Summer Programs

McGill offers a number of off-campus summer programs.

McGill Summer Courses in Italy

The Department of Italian Studies at McGill University offers up to 12 credits of courses given in Florence, Italy, during the months of May, June, and July, 2011.

Location: Florence, Italy

Application Deadline: March 28, 2011

Application Details: Applications and information are available at [www.mcgill.ca/italian](http://www.mcgill.ca/italian). Students must fill out the application form and contact either of the program coordinators, Ms. Vanna Fonsato or Dr. Enrica Quaroni, by email at florence.italian@mcgill.ca BEFORE registering on Minerva.

Courses:
8.12.2 Desautels Faculty of Management

Courses are given abroad in the Summer session and cover essentially the same material as the equivalent courses given in Montreal. They will, however, be heavily influenced by the local business environment. Courses are offered in various locations.

For the most up-to-date information concerning Summer Abroad courses, please visit the Minerva Class Schedule at [www.mcgill.ca/minerva](http://www.mcgill.ca/minerva).

**Application Details:** For registration and/or advising, please contact the BCom Student Affairs Office at 514-398-4068.

8.13 Off-Campus Courses

McGill offers a number of off-campus courses.

### 8.13.1 Architecture

<table>
<thead>
<tr>
<th>Course:</th>
<th>(1) Sketching School</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 324</td>
<td>(Summer-Section 001 (TBD)) (Prerequisite: ARCH 218) An eight-day supervised field trip in the late summer to sketch places or things having specific visual characteristics. Students are required to complete Sketching School in the B.Sc.(Arch.) program.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course:</th>
<th>(3) Summer Course Abroad</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 379</td>
<td>(Summer-Section 001 (TBD)) (Prerequisite: ARCH 202 or permission of instructor) (Restriction: Departmental permission required) Studies in-situ of key buildings, landscapes, and urban settings; techniques of graphic documentations, analysis of physical configuration, constructional details, and present use. Excursions to neighbouring sites of architectural interest.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course:</th>
<th>(3) Field Course Abroad</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH 519</td>
<td>(Summer-Section 001 (TBD)) (Prerequisite: ARCH 304 or permission of instructor) (Restrictions: Limited enrolment; departmental permission required) (Note: Excursions to neighbouring sites of architectural interest) Advanced and comprehensive studies in-situ of key buildings, landscapes and urban settings; techniques of graphic documentations, analysis of physical configuration, constructional details, and present use.</td>
</tr>
</tbody>
</table>

### 8.13.2 Art History & Communication Studies

<table>
<thead>
<tr>
<th>Course:</th>
<th>(3) Italian Renaissance Art 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 367</td>
<td>Not Offered: Summer 2011</td>
</tr>
</tbody>
</table>

### 8.13.3 Biology

The Faculty of Science offers the following biology courses off campus.
### 8.13.4 Classics

**Course:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLAS 348</td>
<td>3</td>
<td>Greek and Roman Topography</td>
</tr>
</tbody>
</table>

Not Offered: Summer 2011

### 8.13.5 Earth & Planetary Sciences

Two-week field studies (May) in selected branches of the geosciences to examine processes in geology.

**Courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSC 231</td>
<td>3</td>
<td>Field School 1</td>
</tr>
<tr>
<td>EPSC 331</td>
<td>3</td>
<td>Field School 2</td>
</tr>
<tr>
<td>EPSC 341</td>
<td>3</td>
<td>Field School 3</td>
</tr>
</tbody>
</table>

### 8.13.6 Geography

The Faculty of Science offers the following Geography courses off campus.

**Courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 290</td>
<td>1</td>
<td>Local Geographical Excursion</td>
</tr>
<tr>
<td>GEOG 495</td>
<td>3</td>
<td>Field Studies - Physical Geography</td>
</tr>
<tr>
<td>GEOG 496</td>
<td>3</td>
<td>Geographical Excursion</td>
</tr>
<tr>
<td>GEOG 499</td>
<td>3</td>
<td>Subarctic Field Studies</td>
</tr>
</tbody>
</table>

### 8.13.7 Italian Studies

The Department of Italian Studies at McGill University offers up to 12 credits of courses given in Florence, Italy.

**Courses:**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITAL 206</td>
<td>6</td>
<td>Beginners' Italian Intensive</td>
</tr>
<tr>
<td>ITAL 216</td>
<td>6</td>
<td>Intermediate Italian Intensive</td>
</tr>
<tr>
<td>ITAL 255</td>
<td>6</td>
<td>Advanced Reading and Composition</td>
</tr>
<tr>
<td>ITAL 307*</td>
<td>3</td>
<td>Topics in Italian Culture</td>
</tr>
<tr>
<td>ITAL 308</td>
<td>3</td>
<td>Business Italian 1</td>
</tr>
<tr>
<td>ITAL 309**</td>
<td>3</td>
<td>Perspectives on Italy</td>
</tr>
</tbody>
</table>

* Topic for May 2011: Landscapes of Struggle: The City and Modernity in Italian Post-War Cinema. Taught in English. For specific details on course content, please consult Prof. E. Bolongaro, Department of Italian Studies.

** Topic for May 2011: Florence and the Shaping of the Modern Imagination. Taught in English. For specific details on course content, please consult Prof. R. Castro, School of Architecture.

** Offered: Please consult Class Schedule on Minerva.

** Location: Florence, Italy

** Application Deadline: March 28, 2011
Application Details: Applications and information are available at www.mcgill.ca/italian. Prior to registration on Minerva, students must contact Dr. E. Quaroni or Ms. V. Fonsato at florence.italian@mcgill.ca.

8.13.8 Music

Course:
MUAR 387 (3) The Opera

Not Offered: Summer 2011

8.13.9 Political Science

Course:
POLI 359 (3) Topics in International Politics 1

Topic for Summer 2011: The Art of Exchange: Medici Money and its Legacy. Florence and Venice, economic hubs in the Renaissance through international exchange, managed their economic relations quite differently. International exchange works through markets that require political underpinnings. The policies of the two cities are contrasted not only with modern practices, but with those developed by Amsterdam in the 1600s. Course will include visits to relevant sites including Venice. For specific details about course content, please consult Prof. M. Brawley, Department of Political Science.

Offered: Section 001 (May 9, 2011/June 3, 2011)
Location: Florence, Italy
Application Deadline: March 28, 2011

Application Details: Applications and information are available at www.mcgill.ca/italian. Prior to registration on Minerva, students must contact Dr. E. Quaroni or Ms. V. Fonsato at florence.italian@mcgill.ca.

9 Desautels Faculty of Management

9.1 About Desautels Faculty of Management

For over a century, the Desautels Faculty of Management has been among the world’s top international business schools. The Faculty is home to 10 research centres, four unique executive development programs, and 11 academic programs with 3,500 students at the undergraduate, master's, executive, and Ph.D. levels. Nearly half of the Faculty’s students and 80% of its tenured professors come from outside of Canada, creating a truly rich global learning environment.

9.2 History of the Faculty

Management education began at McGill University in 1906. The department of Commerce was first established within the Faculty of Arts, offering commercial courses to train people as accountants, clerks, and the like. In 1912, the Commerce Program was named the School of Commerce, and the first B.Com. degrees were awarded by McGill in 1915. Five years later, McGill’s School of Commerce was founded, independent of the Faculty of Arts. In 1972, the Samuel Bronfman building, now home to the Desautels Faculty of Management, was opened at 1001 Sherbrooke Street West at the heart of downtown Montreal. A generous donation from the Bronfman family made the construction of the building possible. The Bronfman family is well known for their Seagram Company.

More than a century later, foundations for a world-class business school expanded to offer a B.Com. program; an M.B.A. program; specialized master's programs; M.B.A. Japan, the first Canadian degree program offered in Japan; a joint bilingual E.M.B.A. with HEC Montréal, a program first of its kind in North America; a Ph.D. program; and numerous executive programs. On November 17, 2005, a landmark gift of $22 million from the Canadian Management Foundation through Mr. Marcel Desautels was donated to the Faculty, ushering in a new era in business education at McGill. The gift fostered changes to its facilities, revamping of the B.Com. and M.B.A. curriculums, and hiring of new professors. In honour of his gift, the Faculty was named the Desautels Faculty of Management.

9.3 Facilities

Management courses are mostly taught in the Samuel Bronfman building. The seven-floor building is located at 1001 Sherbrooke Street West, on the south-west corner of McGill’s downtown main campus. The building is adjacent to McGill’s Bookstore, McLennan, and Redpath Libraries, and the Service
Point across the street. Furthermore, the Bronfman building borders the main campus and other University buildings. It is a walk away from McGill’s Athletics Complex.

In recent years, the Bronfman building has witnessed major upgrades, including, thanks to Herschel Victor’s generosity, a complete renovation of the lobby and bistro. Thanks to Marcel Desautels, numerous large “learning-friendly” classrooms have been built throughout the building, including the Concourse level.

The Concourse is a floor entirely dedicated to Desautels undergraduate students, featuring medium- and large-sized classrooms, a modern computer lab, and a large student-living area. The living area includes a suite of offices for Desautels undergraduate student clubs as well as facilities for social activities. In addition, a small student-run shop, known as Dave’s, is located in the Concourse; it is dedicated to a former classmate.

The Faculty values its students’ participation in project teams for all Bronfman building renovations. Numerous areas throughout the building have been set up and are fully equipped for students to study in groups or individually. Products and furnishings are environmentally friendly and a wireless network is available throughout the building.

The Howard Ross Management Library is conveniently located in the Bronfman building and is modernly equipped for studying and research.

### 9.4 Revisions – Desautels Faculty of Management

#### Concentrations (General Management Major)

*Section 9.9.5.2: Bachelor of Commerce (B.Com.) – Concentration in Entrepreneurship (15 credits)*

*Section 9.9.5.10: Bachelor of Commerce (B.Com.) - Concentration in Strategic Management - Global Strategy (15 credits)*

#### Majors

*Section 9.9.8.6: Bachelor of Commerce (B.Com.) - Major Labour-Management Relations and Human Resources (30 credits)*

### 9.5 About the Desautels Faculty of Management (Undergraduate)

For over a century, the Desautels Faculty of Management has been among the world’s top international business schools. The Faculty is home to 10 research centres, four unique executive development programs, and 11 academic programs with 3,500 students at the undergraduate, master’s, executive, and Ph.D. levels. Nearly half of the Faculty’s students and 80% of its tenured professors come from outside of Canada, creating a truly rich global learning environment.

#### 9.5.1 Location

Samuel Bronfman Building  
1001 Sherbrooke Street West  
Montreal, Quebec H3A 1G5  
Canada

Telephone: 514-398-4068  
Faculty website: www.mcgill.ca/desautels  
Degree website: www.mcgill.ca/desautels/bcom

The BCom Student Affairs Office of the Desautels Faculty of Management and the office of the Director, BCom Program are located in the Samuel Bronfman Building, Room 110. The BCom Student Affairs Office serves all students taking Management courses.

#### 9.5.2 Administrative Officers

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter Todd; B.Com.(McG.), Ph.D.(Br. Col.)</td>
<td>Dean</td>
</tr>
<tr>
<td>Emine Sarigöllü; B.A., M.B.A.(Bogazici), M.A., Ph.D.(Penn.)</td>
<td>Associate Dean, Student Affairs</td>
</tr>
<tr>
<td>Glenn Zabowski; B.Com., M.B.A.(McG.)</td>
<td>Director, BCom Program</td>
</tr>
</tbody>
</table>

#### 9.5.3 The Bachelor of Commerce Program

Internationally acclaimed for its high academic standards and excellence in teaching/research, and widely recognized as Canada’s leading international business school, McGill University consistently attracts top students and faculty members from around the world.
The primary objective of the McGill BCom program is to prepare you for an effective professional and managerial career. This preparation includes developing in you a capacity for critical thinking, for integrating knowledge across different disciplines, and for utilizing current theory in approaching practical business problems. You are also expected to become comfortable with taking risks, working as part of a team, and developing the necessary skills to lead others. You will acquire the critical management competencies which will enable you to offer the expertise organizations need to respond to the ever-changing and increasingly complex global marketplace.

The BCom's highly flexible curriculum offers you both breadth and depth. Breadth is achieved through a broad-based core of required courses which provide the necessary quantitative, analytical, and communication skills, while grounding you in applied theory and practice across the major management disciplines. Depth is achieved through three alternate specializations of study designed to meet the needs of a highly diverse student body with a wide range of career interests and priorities.

In the General Management concentration, you will pursue focused study in two different areas. You must choose one concentration in Management, and for your second area of study, you have two options: 1) choosing a second concentration in Management; or 2) pursuing a minor in another faculty. This option is ideal if you are looking for a general business education, are interested in continuing your education in a related field such as law or industrial relations, or want to pursue a career in a specific sector such as the arts, applied science, or public administration.

Majors and honours programs are available if you want to focus your study in primarily one area in order to get maximum exposure to your chosen field. This option is for students with clearly defined career objectives or those interested in further professional training, such as a CA, CMA, CGA, or CFA designation.

In International Management, you have a chance to pursue interdisciplinary global studies. All students in the Major complete the requirements of the International Business Concentration. You choose to complete social science and humanities courses in one of the following themes: comparative global studies, global politics and economy, or global well-being and development. You are also required to complete at least two levels of a language and 3 credits of research or internship work. Exchanges are recommended.

Candidates coming from the Quebec CEGEP system apply to a three-year program whereas out-of-province and international students follow a four-year program.

9.5.4 BCom Student Affairs Office

The BCom Student Affairs Office provides ongoing advice and guidance on programs and prerequisites, degree requirements, majors, minors and concentrations, registration, course changes, procedures for withdrawal, deferred final examinations, rereads, academic standings, inter-faculty transfers, exchanges or study abroad, transfer credits, scholarships, and graduation. Student advisers offer help managing academic situations during periods of personal, financial, or medical problems, by working with you to identify various possibilities and strategies for making informed decisions.

The BCom Office abides by everything in this publication: prerequisites, concentrations, majors, etc. The BCom Office will not make exceptions for students against this publication in any situation. No exceptions to this publication will be approved by the BCom Office or the Director, BCom program.

For more information, please refer to the BCom website at www.mcgill.ca/desautels/bcom.

9.5.5 Summer Studies

If you want to make up deficiencies in your background, or to accelerate your progress in your degree, you may do so by taking summer courses at McGill or at another institution.

Each summer, from early May to mid-August, many core courses and several elective courses are offered by the Desautels Faculty of Management for full credit. They are available to Management students, and to students from other faculties and universities who have the necessary course prerequisites. McGill also offers a number of summer courses in various disciplines at different levels. Information on summer courses is available from the BCom Student Affairs Office at 514-398-4068 or bcom.mgmt@mcgill.ca, or from the Summer Studies Office at 514-398-5212 or summer.studies@mcgill.ca.

You normally will be allowed to take only 6 credits in each of the two parts of Summer session. If you want to follow a full-time period of study, you will be permitted to enroll for more than 6 credits per part only with special permission of the Director, BCom program. In no circumstance will students be allowed to take more than 12 credits in either part of the Summer session, and students may take no more than 18 credits in a single summer.

If you want to pursue courses at another institution, credit will be granted for such courses only if they fit into your overall program, and if written permission to complete such courses for credit has been obtained in advance from the BCom Student Affairs Office. A course that overlaps with material already completed in your program, or a language course that does not substantially progress beyond corresponding language courses already taken, will not receive credit approval. See section 9.5.7: Transfer Credit and Advanced Standing for more information about transferring credits.

9.5.6 International Student Exchange Program

You are encouraged to take advantage of opportunities to study abroad for a term or year. The international exposure and academic experience gained by taking part in a student exchange are highly worthwhile. Through this program, you may study and earn academic credits at over 70 universities in countries around the world. Exchange opportunities are open to students in most specializations.

More information can be obtained from the BCom Student Affairs Office at 514-398-4068, bcom.mgmt@mcgill.ca, or on the McGill website at www.mcgill.ca/students/international/studyabroad. At least two-thirds of all departmental program requirements must be completed at McGill and there is a CGPA requirement of 3.0 to be eligible for exchange. Once accepted, you must obtain written faculty authorization for transfer credits before leaving on exchange. For more information about the International Student Exchange program, please visit: www.mcgill.ca/desautels/bcom/program_info/exchange.
9.5.7 Transfer Credit and Advanced Standing

Students are admitted to a four-year program requiring the completion of 120 credits, but advanced standing of up to 30 credits may be granted if you have obtained satisfactory results in the Diploma of Collegial Studies, International Baccalaureate, French Baccalaureate, Advanced Levels, and Advanced Placement Tests. Students who transfer course credit from another institution may transfer up to one-third of the credits required in their degree program, including the concentration, major, or honours requirements under the following conditions:

- Only courses passed with a grade of C or better at the host institution will be transferred. Grades of C- are not acceptable.
- Grades of P or S are acceptable only if transferred from faculties within McGill.
- The letter grades applied by the former home institution or host institution (for exchanges and study away) take precedence over the numerical grades if provided.
- For exchange or study away purposes, it is required that course and credit approval is obtained before courses are taken at the host institution.
- The four-year program will require a minimum 80-credit residency at McGill.
- The three-year program will require a minimum 60-credit residency at McGill.

9.6 BCom Degree Admission Requirements

The Desautels Faculty of Management offers programs that are highly selective and fulfilment of minimum admission requirements does not guarantee acceptance. For information about admission requirements to the BCom program, please refer to the Undergraduate Admissions Guide, found at www.mcgill.ca/applying. Students who have been asked to withdraw from a program in another faculty/university due to poor performance are not eligible for transfer into the BCom program. Information about interfaculty transfers can be obtained from the BCom Student Affairs Office at 514-398-4068 or the BCom website at www.mcgill.ca/desautels/bcom.

9.7 BCom Degree Requirements

The Bachelor of Commerce (BCom) degree program is a three- or four-year program when taken full-time. Although the language of instruction at McGill is English, those who plan to be part of the Quebec business environment are reminded of the importance of competence in both written and oral French. Students may submit assignments and write exams in French.

9.7.1 Academic Requirements for Graduation

Each student in the Desautels Faculty of Management must be aware of the Faculty regulations as stated in this publication and on the McGill and BCom websites. While BCom Office advisers and staff are always available to give advice and guidance, the ultimate responsibility for completeness and correctness of course selection and registration, for compliance with, and completion of, program and degree requirements, and for the observance of regulations and deadlines rests with you. It is your responsibility to seek guidance from the BCom Student Affairs Office if in any doubt; misunderstanding or misapprehension will not be accepted as cause for any exception from any regulation, deadline, program, or degree requirement.

For students entering with a Quebec CEGEP Diploma, the number of credits is generally 90. Students from outside the province of Quebec who have not completed the equivalent of a CEGEP Diploma are required to complete 120 credits.

It is your responsibility to make sure that your course of study conforms with the curriculum requirements as described in this publication. If you want to deviate from your program, you must obtain written permission from the Director, BCom program.

If you have transferred with advanced standing to the Desautels Faculty of Management from another university, you are required to complete a minimum of 60 credits while registered in the BCom program, including required courses that are deemed necessary, to become eligible for the degree of BCom.

9.7.2 Cumulative Grade Point Average (CGPA)

You will be eligible for graduation upon satisfactory completion of the minimum credit requirement for the degree as indicated in your letter of acceptance, subject to the curriculum and CGPA of 2.00 (3.00 for Honours) requirements.

9.7.3 Course Requirements

All required and complementary courses used to fulfil program requirements, including the Freshman program, must be completed with a grade of C or better. If you fail to obtain a satisfactory grade in a required course (core, part of a concentration, minor, major, or honours program), you must repeat the course. Course substitution will be allowed only in special cases; you should consult your academic adviser. Normally, you are permitted to repeat a failed course only once (failure is considered to be a grade of less than C or the administrative failures of J and KF). If the failed course is a complementary course required by the program, you may choose to replace it with another complementary course. If you choose to substitute another complementary course for a complementary course in which a D was received, credit for the first course will still be given, but as an elective. If you repeat a required course in which a D was received, credit will be given only once. In either case, both grades of D count toward the CGPA.
9.7.4 Academic Advising

If you are entering the Desautels Faculty of Management for the first time, you are required to attend an Orientation and Advising Session during the last week of August, at which time the staff from the BCom Student Affairs Office provide information on all aspects of the BCom program. If you have had difficulty registering for your courses, you will have the opportunity to resolve your problems after this session. For a detailed description of advising and registration procedures, you should refer to section 9.7.5: Registration; the website for newly admitted undergraduate students at www.mcgill.ca/newstudents; as well as the BCom website at www.mcgill.ca/desautels/bcom.

Academic advising for all returning students takes place in February and March for the upcoming academic year. "Drop-in" advising is available in the BCom Student Affairs Office from mid-August until the end of the add/drop period in the Fall term, and from the beginning of January until the end of the add/drop period in the Winter term. Appointments to discuss programs of study with student advisers may be made as soon as the add/drop period ends in September and then again in January, respectively. In February or March, an Information Session takes place that helps you to select a course of study for specialization. In April, as a student continuing in the BCom program, you will plan your studies for the following year using the requirements as listed in the Calendar, or in the Degree Evaluation Module available through Minerva, as a guide to your course selection. Advice is available at the BCom Student Affairs Office for students if you are having difficulty. Students register online using Minerva at www.mcgill.ca/minerva.

If you are a General Management student choosing to do a minor in another faculty as your second area of study, you should meet with the appropriate department adviser to plan your courses. **It should be noted that minors must have a minimum of 18 credits not overlapping with other program requirements.**

If you are taking the Minor, Major, or Honours in Economics, you must see an adviser in the BCom Student Affairs Office for approval of your program and course selection.

If you are in the Major concentration or Minor in Mathematics, or Statistics, you must have your program of study initially authorized by the appropriate department adviser prior to consulting with a student adviser in the BCom Student Affairs Office.

You should contact a student adviser as soon as possible if you are encountering difficulties (academic or personal) or are requesting specific information about the BCom program.

9.7.5 Registration

- It is your responsibility to register on time. Failure to register for courses when the registration periods begin may delay graduation and completion of program requirements. **Space is limited.**
- Registration for Fall and Winter courses will begin in late March and early April for BCom students. Priority registration in Management courses for Summer opens in early March. Exact dates may be obtained from www.mcgill.ca/importantdates.
- BCom students who are unable to register for required or complementary courses that they need in order to graduate on time should submit a copy of the **Closed Management Course Request Form** to the BCom Student Affairs Office with a copy of their Degree Evaluation and any relevant supporting documentation. During the add/drop periods, you must meet with an adviser; **Closed Management Course Request Forms** will not be accepted. Exact deadlines may be obtained from www.mcgill.ca/importantdates.
- BCom students are generally not permitted to take courses offered through the School of Continuing Studies (SCS) for credit toward their degree. If you want to receive special permission to take a course through SCS (i.e., to enable you to graduate on time or take an approved elective that is only offered by SCS), you must submit a **Cont Ed Request Form** to the BCom Student Affairs Office with a copy of your Degree Evaluation and any relevant supporting documentation. You cannot register for SCS courses via Minerva; if approved, the BCom Office will need to add this course to your record. You should **not** go to nor contact the School of Continuing Studies regarding registration for an SCS course.
- New students must select their area(s) of specialization online using Minerva **before** they are permitted to register for courses. The program options available are found in the **Change your Curriculum** module of the Student Menu.
- Full-time students must register for courses online using Minerva. Additional information for new students is distributed at the time of admission and is also available on the Faculty website at www.mcgill.ca/desautels under **Degree Programs > BCom > Accepted Students** and www.mcgill.ca/student-records. Information for returning students and part-time students is available in the BCom Office as of March.
- If you want to change the courses for which you are registered within the add/drop period, you must do so online using Minerva.
- If you want to withdraw from a course after the add/drop deadline, you must do so online using Minerva by the withdrawal deadline. A grade of "W" will be indicated on the transcript, which does not affect your GPA. Approval to withdraw after the withdrawal deadline will be granted only in exceptional circumstances. A written request for such consideration, accompanied by substantial documentation, must be submitted to the Director, BCom Program. If your circumstances require you to withdraw from your program completely, you should see an adviser in the BCom Student Affairs Office.
- All courses have limited enrolment. When your record is verified, any courses taken that violate the degree regulations will be flagged after the end of the course change period as "not for credit towards the BCom". As a result, your expected date of graduation may be delayed. If you believe that you have valid reasons to take a course that may not be credited toward your BCom, you must obtain permission from the Director, BCom Program.

9.7.6 Course Overlap

You will not receive credit toward your degree for any course that overlaps in content with a course taken for credit at McGill, CEGEP, another university, advanced placement exams, Advanced Level results, International Baccalaureate Diploma, or French Baccalaureate Diploma.

It is your responsibility to consult with the BCom Student Affairs Office as to whether or not credit can be obtained and to be aware of exclusion clauses specified in the course descriptions in this publication. Please refer to the following website for specific information about advanced standing credits and McGill course exemptions: www.mcgill.ca/student-records/transfercredits.

**Credit for Statistics courses** will be given with the following restrictions:
Credit will be given for ONLY ONE of the following Statistics courses: AEMA 310, BIOL 373, ECON 227D1/ECON 227D2 (max. 3 credits), ECON 257D1/ECON 257D2, GEOG 202, GEOG 351, MATH 204, MATH 324, MATH 357, MGCR 271, MGCR 273, MIME 209, PSYC 204, SOCI 350.

Credit will be given for ONLY ONE of the following intermediate Statistics courses: MGSC 272, ECON 257D1/ECON 257D2, ECON 337 & ECON 338, ECON 467.

For 500-level Statistics courses not listed above, you must consult a student adviser to ensure that no significant overlap exists. Where such overlap exists with a course for which you have already received credit, credit will not be allowed.

Credit for Statistics courses offered by faculties other than Management requires the permission of the Director, BCom program.

PSYC 204 may not be taken if a grade of 75% or better was received in an equivalent course completed at CEGEP.

Credit for computer courses offered by the School of Computer Science is governed by rules specified in its individual course descriptions.

Credit for Economics courses will be subject to the following restrictions:

- A maximum of 6 credits will be granted for Freshman Economics courses.
- A maximum of 6 credits will be granted for ECON 230D1/ECON 230D2, ECON 250D1/ECON 250D2, and MGCR 293.
- A maximum of 6 credits will be granted for ECON 330D1/ECON 330D2, ECON 352D1/ECON 352D2, and ECON 295.
- ECON 208 and ECON 209 are not permitted in the 90-credit program.

### 9.7.7 Course Taken Under the Satisfactory/Unsatisfactory Option

You may select or cancel the S/U option only during registration or the add/drop period through a request to the BCom Student Affairs Office. All S/U credits will be excluded when calculating the Grade Point Average. This option may only be used for elective courses, one course per term, to a maximum of 10% of the total credits taken at McGill to fulfill your degree requirements. Careful consideration should be given before using this option as it can affect scholarship and award consideration, where a minimum of 27 graded credits are required, as well as future admission to law or graduate schools.

For more information and restrictions, refer to Courses Taken under the Satisfactory/Unsatisfactory (S/U) Option in the University Regulations and Resources section of this publication.

### 9.7.8 Electives

#### 9.7.8.1 Non-Management Electives

Students completing two concentrations, or Majors in Accounting, Finance, Information Systems, Labour-Management Relations, or Marketing, must take a minimum of 6 credits of non-Management electives. This requirement does not apply to those completing a minor or a major in Economics, Mathematics, Statistics, or Psychology, or an Honours or Joint Honours program.

Non-Management electives may be chosen from a broad range of faculties and departments, subject to the exclusions of section 9.7.6: Course Overlap regarding Statistics, Computer, and Economics courses, and the restrictions listed below.

Note 1: Quantitative Methods, Statistics, and Research courses offered by any department must be approved by the Director, BCom program, prior to registration in the course. Failure to obtain the necessary approval will result in the course being excluded (E) from the credit count.

Note 2: A maximum of 6 credits can be taken in English for Academic Purposes and/or English as a Second Language: the relevant subject codes are CEAP, CEEN, CEGL, CESL, and EDEC.

#### 9.7.8.1.1 Faculty constraints

**Agriculture & Environmental Sciences**
- All courses require approval by a student adviser in the BCom Student Affairs Office.

**Arts**
- All courses are approved, subject to section 9.7.6: Course Overlap and the above notes, with a maximum of 6 credits approved in CEAP, CEEN, CEGL, CESL, and EDEC (combined), or SWRK (approved courses only). ECON 208 and ECON 209 may not be taken for credit within the BCom program.

**Continuing Studies**
- A maximum of 6 credits are approved from the language courses offered; no credit will be granted for other SCS courses with subject codes beginning with a “C”, such as CCTR or CMIS.

**Education**
- A maximum of 6 credits are approved from the following subject codes (combined): EDEA 201, 204, 205, 296, 304, 305, 307, 496, 497; EDEC 200, 202, 205, 208, 236, 239, 241, 242, 247, 248, 260, 261, 305, 308, 309, 403; EDEE 325; EDEM 220; EDER 207, 209, 309, 394, 395, 461, 473, 494; EDES 366; EDKP 205, 206, 261, 292, 293, 303, 330, 391, 395, 566; EDPC 510; EDPE 377; EDPE 526.
- No courses are approved from subject codes EDET, EDFC, EDPE, EDPT, or EDSL.

**Engineering**
- Most courses in subject codes ARCH, CHEE, CIVE, ECSE, MECH, MIME, URBP with approval of an adviser.
- No courses are approved from subject codes FACC or MPMC.
- The following courses are not approved: CHEE 291, 360, 462; CIVE 210, 432; ECSE 443; MECH 201, 260, 262, 289; MIME 202, 221, 280, 290, 291, 310, 380, 392, 480, 481, 494.

**School of Environment**
- All courses are approved.

**Music**
- All courses are approved in subject codes MUGT, MUHL, MUMT, MUPP, MUSR, MUTH, and MUAR (taught by Arts).
- A maximum of 6 credits is approved from the following (combined): MUCA, MUCT, MUCF, MUIT, MUF, MUJZ, MUPG, and MUSP.

**Religious Studies**
- All courses are approved.

**Science**
- All courses are approved, subject to section 9.7.6: Course Overlap and the above note 1, except COMP 102; MATH 111, 112, 122, 123, 133, 139, 140, 141, 150, 151, 152, and 203.
- A maximum of 6 credits may be taken from the World of Chemistry courses CHEM 180, 181, 182, 183.

### 9.7.8.2 Electives

Subject to the requirements and restrictions for non-Management electives as outlined above, all remaining elective credits may be taken in any faculty, Management or otherwise.

### 9.7.9 Academic Standing

Academic Standing is based primarily on your cumulative grade point average (CGPA), but may also be affected by your term grade point average (TGPA). Academic Standing is assessed in January for the Fall term, in May for the Winter term, and in September for the Summer term. Academic Standing in each term determines whether you will be allowed to continue your studies in the next term and whether any conditions will be attached to your registration.

Decisions about Academic Standing in the Fall term are based only on grades that are available in January. Grades for courses in which you have deferred examinations and Fall-term grades for courses that span the Fall and Winter terms do not affect your Academic Standing for the Fall term, even though they will ultimately affect your Fall TGPA. Therefore, Academic Standings for the Fall term are designated as "Interim". Interim Standing decisions are mentioned below only if the rules for them differ from those for regular Standing decisions.

If you are not in Satisfactory Standing, you are strongly advised to consult with Naomi Neuburger or Heather McCombie in the BCom Student Affairs Office about your course selection before the withdrawal deadlines.

#### 9.7.9.1 Satisfactory/Interim Satisfactory Standing

If you are in Satisfactory Standing, you may continue in your program.

- New students are admitted to Satisfactory Standing.
- Students with a CGPA of 2.00 or greater are in Satisfactory Standing.

#### 9.7.9.2 Probationary/Interim Probationary Standing

If you are in Probationary Standing, you may continue in your program, but must carry a reduced load (maximum 14 credits per term) and raise your TGPA and CGPA to return to Satisfactory Standing (see above). You should see your student adviser to discuss your course selection.

If you are in Interim Probationary Standing, you may continue in your program, but should evaluate your course load and reduce it as appropriate. You are strongly advised to consult with your student adviser, before the withdrawal deadlines, about your course selection for the Winter term.

- If you were previously in Satisfactory Standing, you will be placed in Probationary Standing if your CGPA falls between 1.50 and 1.99.
- If you were previously in Probationary Standing, you will remain in Probationary Standing if your CGPA falls between 1.50 and 1.99 and your TGPA is 2.50 or higher (although the TGPA requirement will not apply to the Summer term).
- If you were previously in Interim Unsatisfactory Standing, you will be placed in Probationary Standing if your CGPA falls between 1.50 and 1.99 and your TGPA is 2.50 or higher.
- If you were previously in Unsatisfactory Standing and you were readmitted to the BCom program by the Director, you will be placed in Probationary Standing if your CGPA is lower than 2.00. To remain in the program, you must satisfy the relevant conditions specified in your letter of readmission.

#### 9.7.9.3 Unsatisfactory Readmitted Standing

If you were previously in Unsatisfactory Standing and you were readmitted to the BCom program by the Director, you will have your Standing changed to Unsatisfactory Readmitted Standing. You course load is specified in your letter of readmission, as are the conditions you must meet to be allowed to continue in your program. You should see your student adviser to discuss your course selection.
9.7.9.4 Unsatisfactory/Interim Unsatisfactory Standing

If you are in Interim Unsatisfactory Standing, you may continue in your program, but should evaluate your course load and reduce it as appropriate. You are strongly advised to consult a student adviser, before the withdrawal deadlines, about your course selection for the Winter term.

If you are in Unsatisfactory Standing, you have failed to meet the minimum standards set by the Faculty. You may not continue in your program, and your registration will be cancelled.

Appeals for readmission by students in Unsatisfactory Standing should be addressed to the Director, BCom program, no later than July 15 for readmission to the Fall term and November 15 for the Winter term. Readmission will be considered only when proof of extenuating circumstances that affected academic performance can be provided (i.e., medical or other documentation) along with reassurances of future improvement. If you are in Unsatisfactory Standing for the second time, you must withdraw permanently.

- You will be placed in Unsatisfactory Standing (Winter or Summer term) or Interim Unsatisfactory Standing (Fall term) if your CGPA falls or remains below 1.50.
- If you were previously in Probationary, Unsatisfactory Readmitted, or Interim Unsatisfactory Standing, you will be placed in Unsatisfactory Standing if your TGPA falls below 2.50 and your CGPA is below 2.00.
- If you were previously in Unsatisfactory Standing and you were readmitted to the BCom program by the Director and you have not at least satisfied the conditions to attain Probationary Standing that were specified in your letter of readmission, you will be placed in Unsatisfactory Standing.

9.7.9.5 Incomplete Standings

Standing awaits deferred exam.

Standing Incomplete

If you have an Incomplete Standing in the Winter or Summer term, you may register for the Fall term, but your Standing must be resolved by the end of the add/drop period for that term. If your Incomplete Standing changes to Satisfactory, Probationary, or Interim Unsatisfactory Standing, you may continue in the program. If your Standing changes to Unsatisfactory Standing, you may not continue in your program, and your registration will be cancelled.

If your Standing changes to Unsatisfactory and you wish to ask for permission to continue in your program, you must meet with Heather McCombie as soon as you are placed in Unsatisfactory Standing. Readmission will be considered only when proof of extenuating circumstances that affected academic performance can be provided (i.e., medical or other documentation) along with reassurances of future improvement.

9.7.10 Time and Credit Limit for Completion of the BCom Degree

If you need 90 or fewer credits to complete your degree requirements, you are expected to complete your degree in no more than eight terms after your initial registration for the BCom degree. If you are a student in the Freshman program, you become subject to these regulations one year after your initial registration. If you want to exceed this time limit or want to exceed the minimum credit requirement for your degree, you must apply in writing to the Director, BCom program, for permission to continue your studies. Permission for exceeding the time and/or credit limit will normally be granted only for valid academic reasons. Elective credits over the credit limit will be flagged for no credit and the grades will not count in your CGPA.

If you are readmitted after interrupting your studies for a period of one year or more, you must apply in writing to the Director, BCom program. When you are readmitted after a period of absence, you are normally subject to these regulations one year after your initial registration.

If you need 90 or fewer credits to complete your degree requirements, you are expected to complete your degree in no more than eight terms after your initial registration for the BCom degree. If you are a student in the Freshman program, you become subject to these regulations one year after your initial registration. If you want to exceed this time limit or want to exceed the minimum credit requirement for your degree, you must apply in writing to the Director, BCom program, for permission to continue your studies. Permission for exceeding the time and/or credit limit will normally be granted only for valid academic reasons. Elective credits over the credit limit will be flagged for no credit and the grades will not count in your CGPA.

If you are readmitted after interrupting your studies for a period of one year or more, you must apply in writing to the Director, BCom program. When you are readmitted after a period of absence, you are normally subject to these regulations one year after your initial registration.

9.8 Grading and Credit

During the first week of lectures, each instructor will provide you with a written course outline that should include:

- A description of the topics to be considered in the course;
- A list of required or recommended textbooks and reading materials;
- A grading scheme or description of the methods of evaluation to be used in the course, along with due dates for assignments and dates/times of exams. All term work must be assigned early enough in the term for students to complete the assignment(s) by the last day of class. The due date for term work must be no later than the last day of classes. Changes in the distributed grading scheme are permitted only with the unanimous consent of all students registered in the course. In practice, therefore, the grading scheme is almost never changed during the term;
- The instructor's office hours for students, office location, telephone number for office appointments, and secretarial contact information;
- Academic Integrity statement: McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism, and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see www.mcgill.ca/students/srr/honest for more information).

9.8.1 Examinations

For information about final examinations and deferred examinations, see also University Regulations and Resources > Examinations. Final examinations are centrally administered by Enrolment Services. Around the beginning of November and March, a final examination schedule will be posted on the McGill website (www.mcgill.ca) by Enrolment Services. The seating arrangements are posted on the McGill website toward the end of the last week of classes.
BCom students and non-Management students taking BCom courses are contacted by Enrolment Services via McGill email regarding final exam conflicts. Arrangements to resolve final exam conflicts are made and communicated by Enrolment Services via McGill email as well. You should also refer to the BCom website at www.mcgill.ca/desautels/bcom for more information. Students are warned not to make travel arrangements to leave Montreal prior to the posting of the official final examination schedule.

BCom courses cannot have examinations scheduled during the last two weeks of term worth more than 10% of the final grade. You must repeat any grades of D or F in core courses or courses as part of a concentration, minor, major, or honours program. However, D is a passing grade for elective courses.

9.8.1.1 Supplemental Examinations
Supplemental examinations are not offered in undergraduate courses administered by the Desautels Faculty of Management. If you are required to improve your standing in a course, you must repeat the course in a subsequent term, completing all course requirements to the satisfaction of the instructor. Faculty policy does not allow you to do additional work to improve your standing in a course.

9.8.1.2 Deferred Examinations
For missed final examinations, whatever the reason may be, professors and students are not to make alternate arrangements. You must complete an Application for Deferred Final Exam through your Minerva account as well as provide supporting documentation to the BCom Office. This online application must be completed within five working days of the date of the exam, and the supporting documentation must be submitted to the BCom Office within this time frame as well. The BCom Office will then review the reasons for the exam having been missed and will either give you permission to write a deferred final exam, or not. If approved, you will write the final exam during the University's official deferred exam period—specific dates in May (Fall terms) and August (Winter and Summer terms). It is up to you to verify the deferral schedule, which the Registrar makes up and administers.

9.8.2 Verification of Grades and Rereads
In accordance with the Charter of Student Rights, and subject to its stated conditions, you have the right to consult any written submission for which you have received a mark and the right to discuss this submission with the examiner.

In a case where you feel that an error has been made in arriving at the final grade, a Verification of Grade Application must be completed in the BCom Student Affairs Office, requesting the instructor to carry out a detailed check that all questions have been marked, and that the final grade has been computed correctly on the basis of the term work, final examination, etc. However, during the course of the term, any requests to have term work re-evaluated should initially be made directly to the instructor.

The Desautels Faculty of Management recognizes two types of rereads or reassessments:

- reread of coursework (term papers, mid-terms, assignments, quizzes, etc.);
- reread of a final exam.

In both cases, rather than recorrect the work and then grade it as they would have done themselves, reviewers assess the appropriateness of the original grade based, for example, on the application of the grading key to the student's work. If a grade is deemed unfair, it is changed, whether the new grade is higher or lower than the original, i.e., the reviewer's grade takes precedence over the original grade.

9.8.2.1 Reread of Coursework
You may apply to the BCom Student Affairs Office for rereads of written coursework. You are assessed a fee of $35.00 for such rereads. Requests for rereads involving group work require the consent of all members of the group, but only one reread fee will be assessed. It is strongly recommended that you consult with the instructor of the course before requesting a reread of coursework. Requests for rereads must be made within 10 working days of the date of return of the graded materials. Reassessments should normally be completed within 20 working days of the request.

9.8.2.2 Rereads of Final Exams
These rereads are administered by the BCom Student Affairs Office. You must apply in writing to the BCom Student Affairs Office by March 31 for courses in the Fall term and by September 30 for courses in the Winter or Summer terms (these deadlines are strictly enforced, and no requests will be accepted past them). You are assessed a fee of $35.00 for such rereads. It is strongly recommended, but not required, that you consult with the instructor of the course before requesting a reread of a final exam.

Reassessments and rereads in courses not in the Desautels Faculty of Management are subject to the deadlines, rules, and regulations of the relevant faculty.

9.8.3 Awards and Honorary Designations: Honours and First-Class Honours
Graduating students registered in an honours program may be awarded Honours or First-Class Honours under the following conditions:

- For Honours, the CGPA at graduation must be at least 3.0 overall and in the specified courses of the program.
- For First-Class Honours, the CGPA at graduation must be at least 3.5 overall and in the specified courses of the program.

Students in an honours program whose GPA or CGPA is below 3.0, or who did not satisfy certain additional program requirements, must consult their student adviser to determine whether they are eligible to graduate in a program other than honours.
Awards and Honorary Designations: Distinction

For information on the designation of Distinction awarded at graduation, see Distinction in the University Regulations and Resources section of this publication.

Awards and Honorary Designations: Dean’s Honour List

For information on the designation of Dean’s Honour List awarded at graduation, see Dean’s Honour List in the University Regulations and Resources section of this publication.

Awards and Honorary Designations: Scholarships, Prizes, and Medals

Various scholarships, prizes, and medals are open to returning and graduating students. Full details can be found in the Undergraduate Scholarships and Awards Calendar available at www.mcgill.ca/students/courses/calendars. For information, see University Regulations and Resources > Scholarships and Student Aid.

As a registered student, you are automatically considered by the Undergraduate Scholarships Committee for each award for which you are eligible, with the following exceptions for in-course scholarships: James Hartt Schurman Memorial Award, Rio Tinto Alcan – Richard Evans International Exchange Award, Danny and Monica Gold Award for Academic Excellence, Hundredth Anniversary MUS Graduating Class of 2007 Scholarship, Sheila Wellington BMO Financial Group Awards, KPMG Scholarship, Commerce ’55 Scholarships, Hyman Herbert Stein Award, Donald R. McRobie Award, Great-West Life & London Life Scholarship, Hugh Howson Memorial Prize, Dr. Alex Paterson Scholarship, Paul-Hervé Desrosiers Scholarship in Entrepreneurial Studies, Shirin Yeganegi Memorial Scholarship, HSBC Bank Canada Management Awards, Bruce and Jocelyn Pearson Scholarship, and RSM Richter Scholarship in Accounting. The Stephen S. Goldbloom Memorial Prize is the exception for a graduating student. For these, the Undergraduate Scholarships Committee welcomes applications and recommendations, substantiated by curriculum vitae, from individual students, student groups, and clubs. Such information should be forwarded to Heather McCombie in the BCom Student Affairs Office. A minimum of 27 graded credits must have been completed in the year to be eligible; 14 credits in one term.

Overview of Programs Offered by the Desautels Faculty of Management

120-Credit Program, Freshman Course Distribution
Management Core
General Management Program (Concentrations)
Minors for Management Students
Minors for Non-Management Students
Majors
Honours

BCom Program Credit Structure: General Management Program (Concentrations)

<table>
<thead>
<tr>
<th>2 Concentrations</th>
<th>90 credits</th>
<th>120 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Requirements</td>
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<td>18</td>
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<td>Core</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>2 Concentrations</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Non-Mgmt Electives</td>
<td>6</td>
<td>12</td>
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<tr>
<td>Electives</td>
<td>18</td>
<td>24</td>
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<tr>
<td>Total</td>
<td>90</td>
<td>120</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>1 Concentration &amp; 1 Minor (18 credits)</th>
<th>90 credits</th>
<th>120 credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman Requirements</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Core</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>1 Concentration + 1 Minor (18 credits)</td>
<td>33</td>
<td>33</td>
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<tr>
<td>Non-Mgmt Electives</td>
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</tr>
</tbody>
</table>
### Concentrations

- Accounting
- Entrepreneurship
- Finance
- Information Systems
- International Business
- Labour-Management Relations
- Marketing
- Operations Management
- Organizational Behaviour
- Strategic Management

### Minors/Minor Concentrations for Management Students

Although only the Mathematics and Statistics Minors are outlined in this section, a wide variety of programs are available as listed in the sections for the Faculties of Arts and Science. Popular choices include Anthropology, Canadian Studies, Computer Science, English – Literature, Environmental Studies, Geological Sciences, German, History, International Development, Political Science, Women’s Studies, etc. Students interested in the Minor in Economics must see an adviser in the BCom Student Affairs Office for Faculty approval.

It should be noted that a minimum of 18 credits of the Minor’s requirements must not overlap with any other part of the student’s program.

### BCom Program Credit Structure: Major or Honours Programs

#### Majors in Management

<table>
<thead>
<tr>
<th>Component</th>
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<tr>
<td>Core</td>
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<td>36</td>
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<tr>
<td>Major</td>
<td>30</td>
<td>30</td>
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<tr>
<td>Non-Mgmt Electives</td>
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<td>Electives</td>
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<td>24</td>
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<tr>
<td>Total</td>
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#### Major Concentrations in Mathematics or Statistics

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<thead>
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<tr>
<td>Major</td>
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<td>39</td>
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### Major in Economics

<table>
<thead>
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<td>Major**</td>
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<td>Non-Mgmt Electives</td>
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<tr>
<td>Electives</td>
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<td>27</td>
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<tr>
<td>Total</td>
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<td>120</td>
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</tbody>
</table>

* MGCR 271 Business Statistics is counted toward the 36 credits of the Major, not core.

** MGCR 293 & ECON 295 in core are exempted by the required ECON courses within the Major.

### Major in International Management

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<thead>
<tr>
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<th>120 credits</th>
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</thead>
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<tr>
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### Major in Psychology

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<tr>
<td>Major</td>
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<td>30</td>
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<tr>
<td>Non-Mgmt Electives</td>
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### Honours in Economics

<table>
<thead>
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<tr>
<td>Core*</td>
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<td>27</td>
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<tr>
<td>Honours</td>
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<td>42</td>
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<tr>
<td>Non-Mgmt Electives</td>
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</table>

* MGCR 271, MGCR 293, & ECON 295 in core are exempted by the required ECON courses within the Honours.

### Joint Honours in Economics & Finance or Joint Honours in Economics and Accounting

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<tbody>
<tr>
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<tr>
<td>Non-Mgmt Electives</td>
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</table>
Joint Honours in Economics & Finance or Joint Honours in Economics and Accounting

<table>
<thead>
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</thead>
<tbody>
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<td>9</td>
</tr>
<tr>
<td>Total</td>
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<td>120</td>
</tr>
</tbody>
</table>

* MGCR 271, MGCR 293, & ECON 295 in core are exempted by the required ECON courses within the Honours.

Honours in Investment Management

<table>
<thead>
<tr>
<th></th>
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<th>120 credits</th>
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<td>36</td>
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<tr>
<td>Honours</td>
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<td>42</td>
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<tr>
<td>Non-Mgmt Electives</td>
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<td>12</td>
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<tr>
<td>Electives</td>
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<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>90</td>
<td>120</td>
</tr>
</tbody>
</table>

Majors

- Accounting
- Economics
- Finance
- Information Systems
- International Management
- Labour-Management Relations
- Marketing
- Mathematics (Major concentration)
- Psychology
- Statistics (Major concentration)

Honours

- Economics
- Economics/Accounting
- Economics/Finance
- Investment Management

**9.9.3 120-Credit Program, Freshman Course Distribution**

Students admitted to a program requiring 97-120 credits (four years) register in a Freshman Year in which they must complete MATH 122 and MATH 123 (or equivalents) as well as the 12 credits of complementary courses specified below.

A minimum grade of C is required for all MATH and Freshman complementary courses.

Please note that you are responsible for ensuring that the prerequisites and corequisites of all courses (required and complementary) are satisfied.

The Freshman Course Distribution is as follows:

**U0 Required Courses (12 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 122</td>
<td>3</td>
<td>Calculus for Management</td>
</tr>
<tr>
<td>MATH 123</td>
<td>3</td>
<td>Linear Algebra and Probability</td>
</tr>
<tr>
<td>BUSA 100</td>
<td>3</td>
<td>Introduction to Management</td>
</tr>
<tr>
<td>BUSA 250</td>
<td>3</td>
<td>Expressive Analysis for MGMT</td>
</tr>
</tbody>
</table>

**U0 Complementary Courses (9 credits)**

9 credits chosen from the following three categories, but no more than 6 credits may be taken in one category:

- C1. Society, Culture & Language
- C2. Critical Thinking & Analysis
- C3. Global Perspective & Environment
Course listings can be found at the Desautels Faculty of Management's website at: www.mcgill.ca/desautels/bcom/program_info/program_structure/120_credit_program/approved.

Students pursuing a 9-credit language course would count 6 credits toward their C1 requirement, while the remaining 3 credits would be elective.

Courses chosen from the categories above need to be approved by the offering department. Any language courses offered through the Faculty of Arts may be taken, with approval from the appropriate department. Additional courses may be taken with approval of a faculty adviser.

U0 Elective Courses (9 credits)

Subject to the restrictions for non-Management electives

Program Footnote:

1. Students considering a major or minor in Mathematics, or an honours or joint honours program in Economics, replace MATH 122 and MATH 123 with three of the following courses, or demonstrate proficiency through appropriate McGill Placement Tests.
   - MATH 122 is replaced with MATH 139 (4) Calculus 1 with Precalculus, or MATH 140 (3) Calculus 1 and MATH 141 (4) Calculus 2.
   - MATH 123 is replaced with MATH 133 (3) Vectors, Matrices and Geometry.
   - 6 of these credits would be counted in the U0 Required Courses and the remaining 3 credits would count toward C2. Critical Thinking & Analysis.

   Note: Management students cannot receive credit for ARET 150, COMP 102, ECON 208, ECON 209, ECON 217, ECON 227, ECON 230, ECON 250, ECON257, MATH 112, MATH 203, or MATH 204 as elective courses.

9.9.4 Management Core

All BCom students take the 36-credit core curriculum set out below, except where modifications are specifically required by a major or honours program. A grade of C or better is required for all core courses. If a D is obtained in a core course, the course must be repeated.

9.9.4.1 Core Course Distribution

<table>
<thead>
<tr>
<th>Required Courses (36 credits)</th>
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<tbody>
<tr>
<td>ECON 295^2</td>
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<tr>
<td>MGCR 211</td>
</tr>
<tr>
<td>MGCR 222</td>
</tr>
<tr>
<td>MGCR 271^1</td>
</tr>
<tr>
<td>MGCR 293^2</td>
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<td>MGCR 331</td>
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<td>MGCR 341</td>
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<td>MGCR 352</td>
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<td>MGCR 360</td>
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<td>MGCR 382</td>
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<td>MGCR 423</td>
</tr>
<tr>
<td>MGCR 472</td>
</tr>
<tr>
<td>Macroeconomic Policy</td>
</tr>
<tr>
<td>Introduction to Financial Accounting</td>
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<tr>
<td>Introduction to Organizational Behaviour</td>
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<tr>
<td>Business Statistics</td>
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<td>Managerial Economics</td>
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<tr>
<td>Information Systems</td>
</tr>
<tr>
<td>Finance 1</td>
</tr>
<tr>
<td>Marketing Management 1</td>
</tr>
<tr>
<td>Social Context of Business</td>
</tr>
<tr>
<td>International Business</td>
</tr>
<tr>
<td>Organizational Policy</td>
</tr>
<tr>
<td>Operations Management</td>
</tr>
</tbody>
</table>

Program Footnotes:

1. Students considering a major concentration in Mathematics, a major concentration in Statistics, or a minor in Statistics are exempted from MGCR 271 by MATH 324. Students considering an honours or joint honours program in Economics replace MGCR 271 with ECON 257D1/ECON 257D2. Students entering the Major in Economics will only count the 3 credits of MGCR 271 in core.

2. Students entering an Economics program are exempted from MGCR 293 by either ECON 230D1/ECON 230D2 (for the Majors program) or ECON 250D1/ECON 250D2 (for the Honours program), and are exempted from ECON 295 in U2 by either ECON 330D1/ ECON 330D2 (for the Majors program) or ECON 352D1/ ECON 352D2 (for the Honours program) taken in U2.

Also note that:
- A maximum of 6 credits will be permitted within the BCom program for MGCR 293 and ECON 230D1/ECON 230D2 or ECON 250D1/ECON 250D2.
- A maximum of 6 credits will be permitted within the BCom program for ECON 295 and ECON 330D1/ECON 330D2 or ECON 352D1/ECON 352D2.
9.9.5 Concentrations (General Management Major)

In order to complete a concentration, students must achieve a grade of C or better in all the courses that comprise the concentration. Students who have failed to earn 15 satisfactory credits will be required to embark on a new concentration, repeat the course(s) in question or, where possible, replace the course(s) with a satisfactory substitution from the complementary courses of the concentration.

In general, students will begin taking courses from the chosen concentration(s) in the U2 year.

Academic mentors are appointed for each Management concentration to assist students in choosing a concentration and provide additional information regarding course selection.

Second Concentration:

Students who choose to take a second concentration will be required to complete 15 non-overlapping credits at a satisfactory level with a minimum grade of C in each course.

9.9.5.1 Bachelor of Commerce (B.Com.) — Concentration in Accounting (15 credits)

Mentor: Professor J. Scott

The Accounting concentration is designed to meet the needs of Management students who want to have a good basic understanding of accounting, but do not intend to become professional accountants or accounting specialists. It is primarily oriented toward users of financial information and emphasizes breadth of knowledge in a coherent selection of courses.

This concentration complements or forms part of the B.Com., General Management program. The individual courses in the concentration also act as service courses for other areas in the Faculty for their majors or concentrations.

Required Courses (6 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
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<td>ACCT 351</td>
<td>(3)</td>
<td>Intermediate Financial Accounting 1</td>
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<tr>
<td>ACCT 361</td>
<td>(3)</td>
<td>Intermediate Management Accounting 1</td>
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Complementary Courses (9 credits)

Selected from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>ACCT 352</td>
<td>(3)</td>
<td>Intermediate Financial Accounting 2</td>
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<td>ACCT 354</td>
<td>(3)</td>
<td>Financial Statement Analysis</td>
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<tr>
<td>ACCT 362</td>
<td>(3)</td>
<td>Intermediate Management Accounting 2</td>
</tr>
<tr>
<td>ACCT 385</td>
<td>(3)</td>
<td>Principles of Taxation</td>
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<tr>
<td>ACCT 434</td>
<td>(3)</td>
<td>Topics in Accounting 1</td>
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<tr>
<td>ACCT 452</td>
<td>(3)</td>
<td>Financial Reporting Valuation</td>
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<tr>
<td>ACCT 453</td>
<td>(3)</td>
<td>Advanced Financial Accounting</td>
</tr>
<tr>
<td>ACCT 454</td>
<td>(3)</td>
<td>Financial Reporting</td>
</tr>
<tr>
<td>ACCT 463</td>
<td>(3)</td>
<td>Advanced Management Accounting</td>
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<tr>
<td>ACCT 475</td>
<td>(3)</td>
<td>Principles of Auditing</td>
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<tr>
<td>ACCT 486</td>
<td>(3)</td>
<td>Business Taxation 2</td>
</tr>
</tbody>
</table>

9.9.5.2 Bachelor of Commerce (B.Com.) – Concentration in Entrepreneurship (15 credits)

Revision, August 2011. Start of revision.

Mentors: Professors A. Burlton, G. Vit

The Entrepreneurship concentration is concerned with the genesis and development of entrepreneurial activities. It deals with the integration of marketing, finance, organization, and policy in the development and expansion of business enterprise. Included are the evaluation of new business ventures, the role of acquisitions, and the strategic issues and operating problems at various stages of a firm’s existence from its beginnings to maturity.

Complementary Courses

At least 6 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>BUSA 462</td>
<td>(3)</td>
<td>Management of New Enterprises</td>
</tr>
</tbody>
</table>
BUS 464 (3) Management of Small Enterprises
BUS 465 (3) Technological Entrepreneurship

Remaining credits to be selected from:

ACCT 361 (3) Intermediate Management Accounting I
ACCT 385 (3) Principles of Taxation
BUS 364 (3) Business Law I
FINE 442 (3) Capital Markets and Institutions
INSY 332 (3) Accounting Information Systems
INSY 432 (3) IT in Business
INSY 454 (3) Technological Foundation for E-Commerce
MGPO 365 (3) Business-Government Relations
MGPO 445 (3) Industry Analysis & Competitive Strategy
MGPO 450 (3) Ethics in Management
MGPO 460 (3) Managing Innovation
MGPO 567 (3) Business in Society
MGSC 578 (3) Simulation of Management Systems
MRKT 438 (3) Brand Management
MRKT 452 (3) Consumer Behaviour
MRKT 453 (3) Advertising Management
MRKT 483 (3) International Marketing Management
ORGB 380 (3) Cross Cultural Management

Revision, August 2011. End of revision.

9.9.5.3 Bachelor of Commerce (B.Com.) - Concentration in Finance (15 credits)

Mentors: Professors L. Barras, M. Bouvard, A. Malkhozov, S. Betermier
International Stream Mentor: A. Durnev
Case Competition Mentors: Professors M. Chaudhury, V. di Pietro

The Finance concentration has been designed to provide understanding of key concepts in finance theory, financial institutions, investment analysis, risk management, and applied techniques. Graduates find a strong demand among financial organizations, governments, and non-financial firms where they pursue careers that lead to positions such as Managing Partner, Treasurer, and V.P. Finance.

Required Courses (9 credits)

FINE 342 (3) Finance 2
FINE 441 (3) Investment Management
FINE 443 (3) Applied Corporate Finance

Complementary Courses (6 credits)

Selected from the following:
FINE 434 (3) Topics in Finance I
FINE 442 (3) Capital Markets and Institutions
FINE 445 (3) Real Estate Finance
FINE 448 (3) Financial Derivatives
Bachelor of Commerce (B.Com.) — Concentration in Information Systems (15 credits)

The Information Systems (IS) concentration is flexible and represents an ideal complement to the majors and concentrations of other areas, as information technology (IT) has the capacity to transform and improve all functions of organizations in every economic sector. This concentration emphasizes the importance of the interrelationships across technology, management, and strategy. The objective is to prepare students to be effective planners, users, and managers of IT in the digital economy. It provides students with assets that award them a unique competitive advantage.

Students with an IS concentration are well positioned to participate in IT-driven changes that continue to affect knowledge work, business processes, organizational design, and the operation of markets and industries. Former graduates have secured jobs in consulting, IT management, business analysis, etc. in various industries, e.g., banking, healthcare, finance, education, government, etc.

Required Course (3 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Course Name</th>
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</thead>
<tbody>
<tr>
<td>INSY 333</td>
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<td>Systems Analysis and Modeling</td>
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Complementary Courses (12 credits)

Selected from the following:

<table>
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<th>Course Code</th>
<th>Credit</th>
<th>Course Name</th>
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</thead>
<tbody>
<tr>
<td>INSY 331</td>
<td>(3)</td>
<td>Managing Information Technology</td>
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<tr>
<td>INSY 332</td>
<td>(3)</td>
<td>Accounting Information Systems</td>
</tr>
<tr>
<td>INSY 339</td>
<td>(3)</td>
<td>IT Consulting</td>
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<tr>
<td>INSY 341</td>
<td>(3)</td>
<td>Developing Business Applications</td>
</tr>
<tr>
<td>INSY 430</td>
<td>(3)</td>
<td>IT in Financial Markets</td>
</tr>
<tr>
<td>INSY 431</td>
<td>(3)</td>
<td>IT Implementation Management</td>
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<tr>
<td>INSY 432</td>
<td>(3)</td>
<td>IT in Business</td>
</tr>
<tr>
<td>INSY 434</td>
<td>(3)</td>
<td>Topics in Information Systems 1</td>
</tr>
<tr>
<td>INSY 437</td>
<td>(3)</td>
<td>Managing Data &amp; Databases</td>
</tr>
<tr>
<td>INSY 440</td>
<td>(3)</td>
<td>E-Business</td>
</tr>
<tr>
<td>INSY 444</td>
<td>(3)</td>
<td>Managing Knowledge with Information Technology</td>
</tr>
<tr>
<td>INSY 450</td>
<td>(3)</td>
<td>Information Systems Project Management</td>
</tr>
<tr>
<td>INSY 454</td>
<td>(3)</td>
<td>Technological Foundation for E-Commerce</td>
</tr>
</tbody>
</table>

Bachelor of Commerce (B.Com.) - Concentration in International Business (15 credits)

Mentors: Professors H. Etemad, M.S. Jo, E. Sarigöllü

The objective of the International Business Concentration is to help the student develop conceptual and analytical skills needed to formulate feasible and effective management policies in an international setting. With economic and business activity becoming increasingly internationalized, the program provides useful preparation for careers in a variety of internationally-oriented organizations, including local business firms involved in international trade, licensing, or financial arrangements; headquarters or subsidiaries of multinational companies; banks and other international financial institutions; and various governmental organizations.

Required Courses (3 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSA 356</td>
<td>(3)</td>
<td>Management in Global Context</td>
</tr>
</tbody>
</table>
Complementary Courses (12 credits)
Selected from the following:

- ACCT 356 (3) International Accounting
- BUSA 391 (3) International Business Law
- BUSA 394 (3) Managing in Asia
- BUSA 395 (3) Managing in Europe
- BUSA 401 (3) Independent Studies in International Business
- BUSA 433 (3) Topics in International Business 1
- BUSA 481 (3) Managing in North America
- BUSA 493 (3) Global Economic Competitiveness
- FINE 480 (3) Global Investments
- FINE 482 (3) International Finance 1
- FINE 492 (3) International Finance 2
- INDR 459 (3) International Employment Relations
- MGPO 383 (3) International Business Policy
- MGPO 469 (3) Managing Globalization
- MGPO 475 (3) Strategies for Developing Countries
- MRKT 451 (3) Marketing Research
- MRKT 483 (3) International Marketing Management
- ORGB 380 (3) Cross Cultural Management

9.9.5.6 Bachelor of Commerce (B.Com.) - Concentration in Labour-Management Relations and Human Resources (15 credits)

Mentor: Professor R. Hebdon

The objective of this concentration is to provide a general understanding of employer-employee relations and human resources, both at the micro-level and in relation to the socio-economic context in which they occur. Students interested in more intensive study of this area are urged to consider the Major program in Labour-Management Relations and Human Resources that is pending University approval.

Required Courses (9 credits)

- INDR 294 (3) Introduction to Labour-Management Relations
- INDR 496 (3) Collective Bargaining
- ORGB 423 (3) Human Resources Management

Complementary Courses (6 credits)
Selected from the following:

- INDR 434 (3) Topics in Labour Management Relations 1
- INDR 449 (3) Occupational Health and Safety
- INDR 459 (3) International Employment Relations
- INDR 492 (3) Globalization and Labour Policy
- INDR 494 (3) Labour Law
- INDR 495 (3) Labour Relations: Public Sector
- INDR 497 (3) Contract Administration
- ORGB 321 (3) Leadership
- ORGB 325 (3) Negotiations and Conflict Resolution
Mentors: Professors M.S. Jo, A. Mukherjee

The Marketing concentration prepares the student for a wide variety of career opportunities. Marketing graduates historically have found employment in the fields of product management, advertising, sales management, marketing management, pricing, marketing research, distribution, and retailing. The Marketing concentration provides a balance between courses focusing on fundamental, theoretical, and "need to know" material, and courses with a strong practical and applied orientation.

**Required Courses (12 credits)**

- MRKT 354 (3) Marketing Management 2
- MRKT 357 (3) Marketing Planning 1
- MRKT 451 (3) Marketing Research
- MRKT 452 (3) Consumer Behaviour

**Complementary Course (3 credits)**

One course selected from:

- MRKT 351 (3) Marketing and Society
- MRKT 355 (3) Services Marketing
- MRKT 365 (3) New Products
- MRKT 434 (3) Topics in Marketing 1
- MRKT 438 (3) Brand Management
- MRKT 453 (3) Advertising Management
- MRKT 455 (3) Sales Management
- MRKT 456 (3) Business to Business Marketing
- MRKT 459 (3) Retail Management
- MRKT 461 (3) Advertising Practicum
- MRKT 483 (3) International Marketing Management
- MRKT 557 (3) Marketing Productivity

Mentors: Professors T. Boyaci, M. Gumus, S. Li, S. Ray, M. Yalovsky

Operations Management is concerned with the design, planning, control, coordination, and improvement of business processes, systems, and resources integral to the creation of the firm's products and services. Emphasizing quantitative analysis and cross-functional thinking, the Operations Management concentration provides training on traditional as well as emerging operations strategies, concepts, models, and techniques that are essential to any firm in today's competitive marketplace. Operations management graduates find career opportunities in a variety of industries and fields including consulting, manufacturing, distribution, retail, transportation, health care, and public sector, among others.

**Required Courses (6 credits)**

- MGSC 373 (3) Operations Research 1
- MGSC 431 (3) Operations Analysis

**Complementary Courses (9 credits)**

Selected from the following:

- MGSC 372 (3) Advanced Business Statistics
or approved courses in other areas or faculties.

9.9.5.9 Bachelor of Commerce (B.Com.) — Concentration in Organizational Behaviour (15 credits)

Mentor: Professor A. Jaeger

The Organizational Behaviour concentration provides an opportunity for students to increase their awareness of behavioural issues encountered in job and organizational settings, and to prepare themselves for graduate study in the behavioural sciences or for careers in general management or human resource management.

Complementary Courses (15 credits)

Selected from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORGB 321</td>
<td>3</td>
<td>Leadership</td>
</tr>
<tr>
<td>ORGB 325</td>
<td>3</td>
<td>Negotiations and Conflict Resolution</td>
</tr>
<tr>
<td>ORGB 380</td>
<td>3</td>
<td>Cross Cultural Management</td>
</tr>
<tr>
<td>ORGB 409</td>
<td>3</td>
<td>Organizational Research Methods</td>
</tr>
<tr>
<td>ORGB 420</td>
<td>3</td>
<td>Managing Organizational Teams</td>
</tr>
<tr>
<td>ORGB 421</td>
<td>3</td>
<td>Managing Organizational Change</td>
</tr>
<tr>
<td>ORGB 423</td>
<td>3</td>
<td>Human Resources Management</td>
</tr>
<tr>
<td>ORGB 429D1*</td>
<td>3</td>
<td>Organizational Behaviour for Course Counsellors</td>
</tr>
<tr>
<td>ORGB 429D2*</td>
<td>3</td>
<td>Organizational Behaviour for Course Counsellors</td>
</tr>
<tr>
<td>ORGB 434</td>
<td>3</td>
<td>Topics in Organizational Behaviour 1</td>
</tr>
<tr>
<td>ORGB 435</td>
<td>3</td>
<td>Women as Global Leaders and Managers</td>
</tr>
<tr>
<td>ORGB 440</td>
<td>3</td>
<td>Career Theory and Development</td>
</tr>
<tr>
<td>ORGB 525</td>
<td>3</td>
<td>Compensation Management</td>
</tr>
</tbody>
</table>

* If ORGB 429 is taken, only 3 credits will count toward the Concentration; the other 3 will be counted as electives.

9.9.5.10 Bachelor of Commerce (B.Com.) - Concentration in Strategic Management - Global Strategy (15 credits)

Revision, August 2011. Start of revision.

Mentors: Professors L. Chauvin, P. Perez-Aleman

There are two options offered in the Strategic Management Concentration: Global Strategy and Social Context.

The Global Strategy Option is intended for students who want to learn strategic management and analysis in the context of globalization. Globalization is no longer the concern of a few large enterprises and financial institutions; it has consequences that affect all kinds of businesses and the environments in which they operate - economic, social, political, and ecological. Global Strategy allows students to assess the various opportunities and threats inherent in globalization, and requires them to explore the consequences and implications of business decisions for society and the environment. It also enables them to think through the requirements of doing business in different economic and political systems. Finally, it offers them the opportunity to understand and analyze industry structures and the kinds of business opportunities they either create or destroy.

Complementary Courses

At least 9 credits selected from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGPO 383</td>
<td>3</td>
<td>International Business Policy</td>
</tr>
</tbody>
</table>
The remaining credits to be chosen from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSA 391</td>
<td>3</td>
<td>International Business Law</td>
</tr>
<tr>
<td>ECON 305</td>
<td>3</td>
<td>Industrial Organization</td>
</tr>
<tr>
<td>MGPO 365</td>
<td>3</td>
<td>Business-Government Relations</td>
</tr>
<tr>
<td>MGPO 434</td>
<td>3</td>
<td>Topics in Policy 1</td>
</tr>
<tr>
<td>MGPO 435</td>
<td>3</td>
<td>International Business History</td>
</tr>
<tr>
<td>MGPO 440</td>
<td>3</td>
<td>Strategies for Sustainability</td>
</tr>
<tr>
<td>MGPO 450</td>
<td>3</td>
<td>Ethics in Management</td>
</tr>
<tr>
<td>MGPO 468</td>
<td>3</td>
<td>Managing Organizational Politics</td>
</tr>
<tr>
<td>MGPO 475</td>
<td>3</td>
<td>Strategies for Developing Countries</td>
</tr>
<tr>
<td>MGSC 578</td>
<td>3</td>
<td>Simulation of Management Systems</td>
</tr>
</tbody>
</table>

**Revision, August 2011. End of revision.**

**9.9.5.11 Bachelor of Commerce (B.Com.) - Concentration in Strategic Management - Social Context (15 credits)**

Mentors: Professors L. Chauvin, P. Perez-Aleman

There are two options offered in the Strategic Management Concentration: Global Strategy and Social Context.

The Social Context option is intended for students who want to learn strategic management and analysis with special attention to the not-for-profit or civil sectors, or who want to focus on broader or more complex social issues within the for-profit sector. The civil sector, made up of voluntary and non-governmental organizations and foundations, is the sector that has been the fastest growing employer for the past decade. Students who focus on this stream will be challenged to place a high priority on environmental issues, as well as issues of sustainability, corporate social responsibility, and social impact. They will also investigate the social tools and mechanisms necessary to employ cross-sectoral collaboration to achieve desired social outcomes.

**Complementary Courses**

At least 9 credits selected from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGPO 365</td>
<td>3</td>
<td>Business-Government Relations</td>
</tr>
<tr>
<td>MGPO 440</td>
<td>3</td>
<td>Strategies for Sustainability</td>
</tr>
<tr>
<td>MGPO 450</td>
<td>3</td>
<td>Ethics in Management</td>
</tr>
<tr>
<td>MGPO 468</td>
<td>3</td>
<td>Managing Organizational Politics</td>
</tr>
<tr>
<td>MGPO 475</td>
<td>3</td>
<td>Strategies for Developing Countries</td>
</tr>
</tbody>
</table>

The remaining credits to be chosen from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSA 391</td>
<td>3</td>
<td>International Business Law</td>
</tr>
<tr>
<td>MGPO 383</td>
<td>3</td>
<td>International Business Policy</td>
</tr>
<tr>
<td>MGPO 434</td>
<td>3</td>
<td>Topics in Policy 1</td>
</tr>
<tr>
<td>MGPO 445</td>
<td>3</td>
<td>Industry Analysis &amp; Competitive Strategy</td>
</tr>
<tr>
<td>MGPO 460</td>
<td>3</td>
<td>Managing Innovation</td>
</tr>
<tr>
<td>MGPO 469</td>
<td>3</td>
<td>Managing Globalization</td>
</tr>
<tr>
<td>MGPO 470</td>
<td>3</td>
<td>Strategy and Organization</td>
</tr>
<tr>
<td>MGPO 567</td>
<td>3</td>
<td>Business in Society</td>
</tr>
</tbody>
</table>
9.9.6 Minors for Management Students

The Minor programs offered in the Faculties of Arts and Science may be taken in conjunction with any BCom program.

Students doing a Minor program must have a Desautels Faculty of Management Minor Approval Form, listing the courses being applied to the Minor, signed by the Minor adviser in the relevant department.

For the Minor in Economics, students must complete 18 credits of material that does not overlap with Management course content. A maximum of 6 credits will be permitted within the BCom program for MGCR 293 and ECON 230D1/D2 or ECON 250D1/D2, and a maximum of 6 for ECON 295 and ECON 330D1/D2 or ECON 352D1/D2. Students interested in this Minor must obtain approval from the BCom Office.

The Minor in Mathematics and the Minor in Statistics are detailed in this publication. For all other Minors, please refer to Faculty of Arts and Faculty of Science sections of this publication. Students should begin the Minor in Mathematics or the Minor in Statistics no later than the second-to-last year and should immediately consult the appropriate adviser in the Department of Mathematics and Statistics.

Students planning to take the Minor in Statistics are advised to substitute MATH 324 for MGCR 271. That course will then count as 3 credits toward the Minor. If the decision to take a Minor program is made after MGCR 271 has been taken, students who wish to take MATH 324 will receive three additional credits; however, MATH 324 will only count toward the 18-credit Minor requirement. Students should check for overlap between Statistics courses with the BCom Student Affairs Office.

9.9.6.1 Bachelor of Commerce (B.Com.) - Minor Mathematics for Management Students (18 credits)

Mentors: Professors A. Hundemer and A. Kelome, Department of Mathematics and Statistics, Faculty of Science

Program Prerequisites

Program Prerequisites

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
</tbody>
</table>

or their equivalents

Required Courses (12 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 223</td>
<td>3</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 315</td>
<td>3</td>
<td>Ordinary Differential Equations</td>
</tr>
<tr>
<td>MGSC 373</td>
<td>3</td>
<td>Operations Research 1</td>
</tr>
</tbody>
</table>

Complementary Courses (6 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGSC 372</td>
<td>3</td>
<td>Advanced Business Statistics</td>
</tr>
<tr>
<td>MGSC 479</td>
<td>3</td>
<td>Applied Optimization</td>
</tr>
<tr>
<td>MGSC 575</td>
<td>3</td>
<td>Applied Time Series Analysis Managerial Forecasting</td>
</tr>
<tr>
<td>MGSC 578</td>
<td>3</td>
<td>Simulation of Management Systems</td>
</tr>
</tbody>
</table>

The remaining 3 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 316</td>
<td>3</td>
<td>Complex Variables</td>
</tr>
<tr>
<td>MATH 317</td>
<td>3</td>
<td>Numerical Analysis</td>
</tr>
<tr>
<td>MATH 319</td>
<td>3</td>
<td>Introduction to Partial Differential Equations</td>
</tr>
<tr>
<td>MATH 323</td>
<td>3</td>
<td>Probability</td>
</tr>
<tr>
<td>MATH 326</td>
<td>3</td>
<td>Nonlinear Dynamics and Chaos</td>
</tr>
<tr>
<td>MATH 340</td>
<td>3</td>
<td>Discrete Structures 2</td>
</tr>
<tr>
<td>MATH 407</td>
<td>3</td>
<td>Dynamic Programming</td>
</tr>
</tbody>
</table>
9.9.6.2 Bachelor of Commerce (B.Com.) - Minor Statistics for Management Students (21 credits)

Mentor: Professor A. Kelome, Department of Mathematics and Statistics, Faculty of Science

Program Prerequisites

- MATH 133 (3) Linear Algebra and Geometry
- MATH 140 (3) Calculus 1
- MATH 141 (4) Calculus 2

or their equivalents

Required Courses (15 credits)

- MATH 222 (3) Calculus 3
- MATH 233 (3) Linear Algebra
- MATH 323 (3) Probability
- MATH 324* (3) Statistics
- MATH 423 (3) Regression and Analysis of Variance

* Credits for MATH 324 are counted in the Management core, where they replace MGCR 271. MATH 324 is a required course in the program and may be double-counted for this Minor.

Complementary Courses (6 credits)

6 credits selected from:

- MATH 204** (3) Principles of Statistics 2
- MATH 447 (3) Introduction to Stochastic Processes
- MATH 523 (4) Generalized Linear Models
- MATH 524 (4) Nonparametric Statistics
- MATH 525 (4) Sampling Theory and Applications
- MGSC 575 (3) Applied Time Series Analysis Managerial Forecasting
- MGSC 578 (3) Simulation of Management Systems

** Students should consult the rules for credit for Statistics courses in the course overlap section of this publication. In particular, MATH 204 cannot be taken for credit after credit for MATH 324 has been obtained.

9.9.7 Minors for Non-Management Students

The Desautels Faculty of Management has introduced four minors that allow undergraduates to develop a variety of managerial skills that will serve them throughout their chosen careers. The minors have limited enrolment. Applicants for the minors must have a minimum CGPA of 3.0 although successful completion of the minimum requirements does not guarantee acceptance. All minors are 18 credits split between a fixed set of required courses and a choice amongst complementary courses. Students can only pursue one of the minors offered by the Desautels Faculty of Management. On an exceptional basis, students may be permitted a maximum of one Continuing Studies course for credit within their chosen Management minor. All minors for non-Management students require an application. The form may be found at www.mcgill.ca/desautels/bcom/prospective_students/minors; hard copies of application forms are also available in the BCom Student Affairs Office, Bronfman 110. Applications must be submitted to the BCom Student Affairs Office by January 30 and decisions will be made by February 15, whereby students will be informed via their McGill email addresses. Courses for minors must be passed with grades of C or better. Courses for minors cannot be taken under the Satisfactory/Unsatisfactory option.

9.9.7.1 Minor Finance (For Non-Management Students) (18 credits)

The Minor Finance consists of 18 credits of Management courses and is offered to non-Management students in the Faculties of Arts, Engineering, and Science. The Minor has been designed to provide students with an understanding of the key concepts in corporate finance as well as investment banking.
Required Courses (9 credits)

- FINE 342 (3) Finance 2
- FINE 441 (3) Investment Management
- MGCR 341* (3) Finance 1

Complementary Courses (9 credits)

9 credits selected from:

- FINE 442 (3) Capital Markets and Institutions
- FINE 443 (3) Applied Corporate Finance
- FINE 444 (3) Risk Management and Insurance
- FINE 445 (3) Real Estate Finance
- FINE 448 (3) Financial Derivatives
- FINE 449 (3) Market Risk Models
- FINE 451 (3) Fixed Income Analysis
- FINE 480 (3) Global Investments
- FINE 482 (3) International Finance 1
- FINE 492 (3) International Finance 2
- FINE 541 (3) Applied Investments
- FINE 547 (3) Advanced Finance Seminar

or other appropriate 300- or 400-level FINE courses with the approval of the Program Adviser.

* Prerequisite: MGCR 271, Business Statistics, or another equivalent Statistics course approved by the Program Adviser.

Note: Students should select their Statistics course only after consulting the "Course Overlap" section in the Faculty of Arts, the "Course Overlap" section in the Faculty of Science, and the "Course Overlap" section in the Desautels Faculty of Management to avoid overlapping Statistics courses.

9.9.7.2 Minor Management (For Non-Management Students) (18 credits)

The Minor Management consists of 18 credits of Management courses and is currently offered to non-Management students in the following Faculties: Arts, Engineering, Science, Agricultural & Environmental Sciences, Music, Religious Studies, and Kinesiology.

This Minor is designed to provide non-management students with the opportunity to obtain basic knowledge in various aspects of management.

Complementary Courses (18 credits)

Selected from categories A, B, and C:

**Category A**

3 credits selected from:

- MGCR 211 (3) Introduction to Financial Accounting
- MGCR 341* (3) Finance 1

**Category B**

9 credits selected from:

- MGCR 222 (3) Introduction to Organizational Behaviour
- MGCR 271** (3) Business Statistics
- MGCR 293*** (3) Managerial Economics
- MGCR 331 (3) Information Systems
Category C
6 credits selected from:
3-6 credits from any 300- or 400-level Management courses for which prerequisites have been met.
0-3 credits may be from a specifically designated course by the student's home faculty.
* Prerequisite: MGCR 271, Business Statistics, or another equivalent Statistics course approved by the Program Adviser.
** 3 credits of statistics: Students who have taken an equivalent Statistics course in another faculty may not count those credits towards the Minor; an additional 3-credit complementary course must be chosen from the course list above.
*** Students who have taken an equivalent Economics course in another faculty may not count those credits toward the Minor; an additional 3-credit complementary course must be chosen from the course list above.
Note: Students should select their Statistics course only after consulting the "Course Overlap" section in the Faculty of Arts, the "Course Overlap" section in the Faculty of Science, and the "Course Overlap" section in the Desautels Faculty of Management to avoid overlapping Statistics courses.

9.9.7.3 Minor in Management for Economics Students
This Minor is no longer available and has been replaced by the Minor in Management (For Non-Management Students).

9.9.7.4 Minor in Management for Engineering Students
This Minor is no longer available and has been replaced by the Minor in Management (For Non-Management Students).

9.9.7.5 Minor in Management for Science Students
This Minor is no longer available and has been replaced by the Minor in Management (For Non-Management Students).

9.9.7.6 Minor Marketing (For Non-Management Students) (18 credits)
The Minor Marketing consists of 18 credits of Management courses and is currently offered to non-Management students in the Faculties of Arts, Engineering, Science, and the Schulich School of Music.
This Minor is designed to provide students with an understanding of the fundamental concepts in marketing and a framework for applying marketing in a decision-making context. Students will be introduced to the basic concepts in marketing. The use of marketing theory and concepts for decision making will be covered. Marketing research methods for marketing decisions is introduced. Subsequently, students will be able to specialize by choosing from the list of complementary courses.

Required Courses (9 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGCR 352</td>
<td>3</td>
<td>Marketing Management 1</td>
</tr>
<tr>
<td>MRKT 354</td>
<td>3</td>
<td>Marketing Management 2</td>
</tr>
<tr>
<td>MRKT 451</td>
<td>3</td>
<td>Marketing Research</td>
</tr>
</tbody>
</table>

Complementary Courses (9 credits)
3 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGCR 271*</td>
<td>3</td>
<td>Business Statistics</td>
</tr>
</tbody>
</table>

6 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MRKT 357</td>
<td>3</td>
<td>Marketing Planning 1</td>
</tr>
<tr>
<td>MRKT 365</td>
<td>3</td>
<td>New Products</td>
</tr>
<tr>
<td>MRKT 438</td>
<td>3</td>
<td>Brand Management</td>
</tr>
<tr>
<td>MRKT 452</td>
<td>3</td>
<td>Consumer Behaviour</td>
</tr>
<tr>
<td>MRKT 453</td>
<td>3</td>
<td>Advertising Management</td>
</tr>
</tbody>
</table>
Sales Management (3) MRKT 455
Retail Management (3) MRKT 459
Advertising Practicum (3) MRKT 461
International Marketing Management (3) MRKT 483

or other appropriate 300- or 400-level MRKT courses with the approval of the Program Adviser.

* Students who have taken an equivalent Statistics course in another faculty may not count those credits toward the Minor; an additional 3-credit complementary course must be chosen from the course list above.

Note: Students should select their Statistics course only after consulting the "Course Overlap" section in the Faculty of Arts, the "Course Overlap" section in the Faculty of Science, and the "Course Overlap" section in the Desautels Faculty of Management to avoid overlapping Statistics courses.

**9.9.7.7 Minor Operations Management (For Non-Management Students) (18 credits)**

Mentor: Professor V. Verter

The Minor Operations Management consists of 18 credits of Management courses and is currently offered to non-Management students in the Faculties of Arts, Engineering, Science, and Agricultural & Environmental Sciences.

It provides non-Management students with the opportunity to pursue a career that involves decision making at the operational level. Graduates will be able to find employment in consulting, manufacturing, supply chain, distribution, retail operations, healthcare management and environmental management for profit and non-profit corporations. This Minor has been designed to provide students with an understanding of the key concepts in operations management theory and practice.

**Required Courses (6 credits)**

- Operations Management (3) MGCR 472
- Operations Research 1 (3) MGSC 373

**Complementary Courses (12 credits)**

3 credits selected from:

- Business Statistics (3) MGCR 271*

9 credits selected from:

- Advanced Business Statistics (3) MGSC 372
- Operations Strategy (3) MGSC 402
- Introduction to Logistics Management (3) MGSC 403
- Quality Management (3) MGSC 405
- Supplier Management (3) MGSC 415
- Operations Analysis (3) MGSC 431
- Topics in Management Science 1 (3) MGSC 434
- Applied Optimization (3) MGSC 479
- Applied Time Series Analysis Managerial Forecasting (3) MGSC 575
- Simulation of Management Systems (3) MGSC 578

or other appropriate 300- or 400-level MGSC courses with the approval of the Program Adviser.

* 3 credits of Statistics: Students who have taken an equivalent Statistics course in another faculty may not count those credits toward the Minor; an additional 3-credit complementary course must be chosen from the course list above.

Note: Students should select their Statistics course only after consulting the "Course Overlap" section in the Faculty of Arts, the "Course Overlap" section in the Faculty of Science, and the "Course Overlap" section in the Desautels Faculty of Management to avoid overlapping Statistics courses.

**9.9.7.8 Minor in Technological Entrepreneurship for Engineering Students**

Detailed information on this Minor can be found under Faculty of Engineering; see the Technological Entrepreneurship Minor section.
Minor in Technological Entrepreneurship for Science Students

Detailed information on this Minor can be found under Faculty of Science; see the Technological Entrepreneurship for Science Students section.

Majors


Because of the heavier demands of Major programs, students desiring to pursue a program of this type are advised to declare their intention at the beginning of the program. Only grades of C or better may count towards the Major requirements.

Bachelor of Commerce (B.Com.) — Major Accounting (30 credits)

Mentors: Professors L. Goldsman, R. Cecere

This 30-credit Major is designed to meet the increased demand for accounting options within the BCom program.

Required Courses (18 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 351</td>
<td>3</td>
<td>Intermediate Financial Accounting 1</td>
</tr>
<tr>
<td>ACCT 352</td>
<td>3</td>
<td>Intermediate Financial Accounting 2</td>
</tr>
<tr>
<td>ACCT 361</td>
<td>3</td>
<td>Intermediate Management Accounting 1</td>
</tr>
<tr>
<td>ACCT 362</td>
<td>3</td>
<td>Intermediate Management Accounting 2</td>
</tr>
<tr>
<td>ACCT 385</td>
<td>3</td>
<td>Principles of Taxation</td>
</tr>
<tr>
<td>ACCT 455</td>
<td>3</td>
<td>Development of Accounting Thought</td>
</tr>
</tbody>
</table>

Complementary Courses (12 credits)

Selected from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 354</td>
<td>3</td>
<td>Financial Statement Analysis</td>
</tr>
<tr>
<td>ACCT 356</td>
<td>3</td>
<td>International Accounting</td>
</tr>
<tr>
<td>ACCT 434</td>
<td>3</td>
<td>Topics in Accounting 1</td>
</tr>
<tr>
<td>ACCT 452</td>
<td>3</td>
<td>Financial Reporting Valuation</td>
</tr>
<tr>
<td>ACCT 453</td>
<td>3</td>
<td>Advanced Financial Accounting</td>
</tr>
<tr>
<td>ACCT 454</td>
<td>3</td>
<td>Financial Reporting</td>
</tr>
<tr>
<td>ACCT 463</td>
<td>3</td>
<td>Advanced Management Accounting</td>
</tr>
<tr>
<td>ACCT 471</td>
<td>3</td>
<td>Non-Profit Accounting</td>
</tr>
<tr>
<td>ACCT 475</td>
<td>3</td>
<td>Principles of Auditing</td>
</tr>
<tr>
<td>ACCT 476</td>
<td>3</td>
<td>Internal Auditing</td>
</tr>
<tr>
<td>ACCT 477</td>
<td>3</td>
<td>External Auditing</td>
</tr>
<tr>
<td>ACCT 486</td>
<td>3</td>
<td>Business Taxation 2</td>
</tr>
</tbody>
</table>

Bachelor of Commerce (B.Com.) - Major Economics for Management Students (36 credits)

Mentors: Professors P. Dickinson, J Kurien, and M. Chemin; Department of Economics, Faculty of Arts

Please consult the Economics Department website.

This Major is comprised of 36 credits of Economics courses (9 credits of which are counted as core credits).

Required Courses (18 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 230D1*</td>
<td>3</td>
<td>Microeconomic Theory</td>
</tr>
<tr>
<td>ECON 230D2*</td>
<td>3</td>
<td>Microeconomic Theory</td>
</tr>
</tbody>
</table>
ECON 330D1**  (3)  Macroeconomic Theory
ECON 330D2**  (3)  Macroeconomic Theory
MGCR 271***  (3)  Business Statistics
MGSC 372  (3)  Advanced Business Statistics

* 3 of the 6 credits for Microeconomic Theory exempt MGCR 293 in Core.
** 3 of the 6 credits for Macroeconomic Theory exempt ECON 295 in Core.
*** 3 of the 3 credits for MGCR 271 will count in Core.

Complementary Courses (18 credits)
Selected from other 200-, 300-, and 400-level courses in Economics (ECON), excluding courses with numbers below 210. At least 6 of these 18 credits should be taken from courses with 400-level numbers. No more than 6 of the 18 credits may be taken at the 200 level.

9.9.8.3  Bachelor of Commerce (B.Com.) - Major Finance (30 credits)

Mentors: Professors L. Barras, M. Bouvard, A. Malkhozov, S. Betermier
International Stream Mentor: A. Durnev
Case Competition Mentors: Professors M. Chaudhury, V. di Pietro

The 30-credit Finance Major has been designed to meet the increasing demand for expertise in this rapidly growing functional area of business. This major is designed to provide in-depth knowledge of finance theory, financial institutions, investment analysis, risk management, and applied techniques. Employment for graduates is most often obtained in investment and commercial banking, manufacturing and service firms, non-profit organizations and governments, and non-financial firms.

Required Courses (15 credits)

FIN 342  (3)  Finance 2
FIN 441  (3)  Investment Management
FIN 443  (3)  Applied Corporate Finance
FIN 448  (3)  Financial Derivatives
FIN 482  (3)  International Finance 1

Complementary Courses (15 credits)
At least 9 credits from:
FIN 434  (3)  Topics in Finance 1
FIN 442  (3)  Capital Markets and Institutions
FIN 449  (3)  Market Risk Models
FIN 451  (3)  Fixed Income Analysis
FIN 480  (3)  Global Investments
FIN 492  (3)  International Finance 2
FIN 541D1  (1.5)  Applied Investments
FIN 541D2  (1.5)  Applied Investments
FIN 547  (3)  Advanced Finance Seminar

The remainder, if any, from:
ACCT 351  (3)  Intermediate Financial Accounting 1
ACCT 352  (3)  Intermediate Financial Accounting 2
ACCT 354  (3)  Financial Statement Analysis
ACCT 385  (3)  Principles of Taxation
9.9.8.4 Bachelor of Commerce (B.Com.) — Major Information Systems (30 credits)

This 30-credit Major prepares students for the multitude of IT-related career opportunities available in industry. It employs a blend of theoretical concepts, hands-on tools, and actual case studies to train students to identify business problems and opportunities, analyze business processes, and develop and implement information systems to support them. The IS Major covers a variety of topics including strategic planning and investment in information technologies, analysis, design, and deployment of information systems, understanding the opportunities and challenges of web-based businesses, and managing resistance to IT-initiated changes in organizations.

Graduates of this program may expect to find employment as business or systems analysts, consultants, IS quality assurance specialists, and project managers in diverse industries, including banking, insurance, manufacturing, retailing, and consulting.

Required Courses (18 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>(3)</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSY 331</td>
<td></td>
<td>Managing Information Technology</td>
</tr>
<tr>
<td>INSY 333</td>
<td></td>
<td>Systems Analysis and Modeling</td>
</tr>
<tr>
<td>INSY 341</td>
<td></td>
<td>Developing Business Applications</td>
</tr>
<tr>
<td>INSY 432</td>
<td></td>
<td>IT in Business</td>
</tr>
<tr>
<td>INSY 437</td>
<td></td>
<td>Managing Data &amp; Databases</td>
</tr>
<tr>
<td>INSY 450</td>
<td></td>
<td>Information Systems Project Management</td>
</tr>
</tbody>
</table>

Complementary Courses (12 credits)

Selected from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>(3)</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSA 499*</td>
<td></td>
<td>Case Analysis and Presentation</td>
</tr>
<tr>
<td>INSY 332</td>
<td></td>
<td>Accounting Information Systems</td>
</tr>
<tr>
<td>INSY 339</td>
<td></td>
<td>IT Consulting</td>
</tr>
<tr>
<td>INSY 342</td>
<td></td>
<td>Enterprise Applications</td>
</tr>
<tr>
<td>INSY 430</td>
<td></td>
<td>IT in Financial Markets</td>
</tr>
<tr>
<td>INSY 431</td>
<td></td>
<td>IT Implementation Management</td>
</tr>
<tr>
<td>INSY 434</td>
<td></td>
<td>Topics in Information Systems 1</td>
</tr>
<tr>
<td>INSY 438</td>
<td></td>
<td>Designing and Developing IT</td>
</tr>
<tr>
<td>INSY 440</td>
<td></td>
<td>E-Business</td>
</tr>
<tr>
<td>INSY 444</td>
<td></td>
<td>Managing Knowledge with Information Technology</td>
</tr>
<tr>
<td>INSY 454</td>
<td></td>
<td>Technological Foundation for E-Commerce</td>
</tr>
</tbody>
</table>

* Students wishing to take BUSA 499 or a course substitution as a complementary course must seek prior approval from the IS Area Coordinator.

9.9.8.5 Bachelor of Commerce (B.Com.) - Major International Management (48 credits)

The Major in International Management (MIM), 42-48 credits, is designed for students who wish to combine business studies with regional or thematic global studies and foreign language proficiency. MIM will acquaint students with the impact of managing in one of three themes:

1) Comparative Global Studies
2) Global Politics and Economy
3) Global Well-Being and Development

This Major is interdisciplinary and integrative and includes a business component: 15-credit International Business concentration; an Area of Study component: 27- to 33-credit Interdisciplinary Area of Specialization that includes an 18-credit Minor concentration outside the Management Faculty, 9-12 credits of language courses, and an experiential learning experience in the form of either exchange, internship or research.

Graduates will be well-suited to manage in culturally diverse environments, to work in a specific area of the world, or in a wide range of global positions in business, government, multilateral organizations, or NGOs.

International Business Concentration Component (15 credits)

Students are required to take the following 3-credit course:
Management in Global Context (3)

Complementary Courses (12 credits)
Selected from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 356</td>
<td>3</td>
<td>International Accounting</td>
</tr>
<tr>
<td>BUSA 391</td>
<td>3</td>
<td>International Business Law</td>
</tr>
<tr>
<td>BUSA 394</td>
<td>3</td>
<td>Managing in Asia</td>
</tr>
<tr>
<td>BUSA 395</td>
<td>3</td>
<td>Managing in Europe</td>
</tr>
<tr>
<td>BUSA 401</td>
<td>3</td>
<td>Independent Studies in International Business</td>
</tr>
<tr>
<td>BUSA 433</td>
<td>3</td>
<td>Topics in International Business 1</td>
</tr>
<tr>
<td>BUSA 481</td>
<td>3</td>
<td>Managing in North America</td>
</tr>
<tr>
<td>BUSA 493</td>
<td>3</td>
<td>Global Economic Competitiveness</td>
</tr>
<tr>
<td>FINE 480</td>
<td>3</td>
<td>Global Investments</td>
</tr>
<tr>
<td>FINE 482</td>
<td>3</td>
<td>International Finance 1</td>
</tr>
<tr>
<td>FINE 492</td>
<td>3</td>
<td>International Finance 2</td>
</tr>
<tr>
<td>INDR 459</td>
<td>3</td>
<td>International Employment Relations</td>
</tr>
<tr>
<td>MGPO 383</td>
<td>3</td>
<td>International Business Policy</td>
</tr>
<tr>
<td>MGPO 469</td>
<td>3</td>
<td>Managing Globalization</td>
</tr>
<tr>
<td>MGPO 475</td>
<td>3</td>
<td>Strategies for Developing Countries</td>
</tr>
<tr>
<td>MRKT 451</td>
<td>3</td>
<td>Marketing Research</td>
</tr>
<tr>
<td>MRKT 483</td>
<td>3</td>
<td>International Marketing Management</td>
</tr>
<tr>
<td>ORGB 380</td>
<td>3</td>
<td>Cross Cultural Management</td>
</tr>
</tbody>
</table>

Area of Study Component (18 credits)
Students choose either one minor concentration or courses from the selected list of courses from one of the three themes below:

Theme 1: Comparative Global Studies
Students can choose to study a region including Africa, East Asia, Middle East, South Asia, Europe, or the Americas, or several regions from a comparative global perspective in Religious Studies, Political Science, History, or Economics. This option focuses on aspects of global society and culture from a social science perspective. This theme is suitable for students who would like to work in a specific country or region or for students who want to work for a multinational company or government organization with global interests.

B.A. Minor Concentration in African Studies (18 credits)
B.A. Minor Concentration in Canadian Studies (18 credits)
B.A. Minor Concentration in Comparative Politics (18 credits)
B.A. Minor Concentration in East Asian Cultural Studies (18 credits)
B.A. Minor Concentration in Economics* (18 credits)
B.A. Minor Concentration in History (18 credits)
B.A. Minor Concentration in Islamic Studies (18 credits)
B.A. Minor Concentration in Jewish Studies (18 credits)
B.A. Minor Concentration in Middle East Studies (18 credits)
B.A. Minor Concentration in North American Studies (18 credits)
B.A. Minor Concentration in Quebec Studies (18 credits)
B.A. Minor Concentration in Russian Culture (18 credits)
B.A. Minor Concentration in South Asia (18 credits)
B.A. Minor Concentration in World Religions (18 credits)
* Students should choose Economics (ECON) courses with a regional focus. Course numbers above ECON 209 (excluding ECON 295) are required, with at least 6 credits at the 300, 400, or 500 levels. Credits for the introductory sequence MGCR 293 and ECON 295 that are prerequisites for 300-level courses in economics do not count as part of this Minor concentration. ECON 227 will not count if it is taken to meet other B.Com. requirements.

**Theme 2: Global Politics and Economy**
This theme focuses on aspects of public policy from the perspective of global transactions and finance. Students may select a minor concentration in the area of international relations and investigate policy on a global scale and its operations in the context of policy, war and peace, the economy, security, trade, human rights, and international organizations. Graduates with this option would be poised to apply their educational background to careers with world government, trade, or economic organizations, NGOs, national governments, or businesses with global interests. The choices of programs include Economics, Geography, Political Science, or a selected group of courses.

- B.A. Minor Concentration in Economics (18 credits)
- B.A. Minor Concentration in International Relations (18 credits)
- B.A. Minor Concentration in Political Economy (18 credits)
- B.A. Minor Concentration in Political Science (18 credits)
- B.A. Minor Concentration in Politics, Law and Society (18 credits)
- B.A. Minor Concentration in Political Theory (18 credits)

**OR**

**Global Governance, Conflict and Human Rights Concentration**
18 credits of the following courses with at least 6 credits at the 300 level or above:

- ANTH 212 (3) Anthropology of Development
- ANTH 214 (3) Violence, Warfare, Culture
- ANTH 222 (3) Legal Anthropology
- ANTH 333 (3) Class and Ethnicity
- CANS 307 (3) Canada in the World
- CANS 412 (3) Canada and Americas Seminar
- COMS 230 (3) Communication and Democracy
- COMS 320 (3) Media and Empire
- HIST 221 (3) United States since 1865
- HIST 302 (3) International Relations History 1: 1750-1950
- HIST 304 (3) International Relations History 2: Cold War
- HIST 339 (3) Arab-Israeli Conflict
- HIST 371 (3) American Civil Rights 1877-1940
- HIST 387 (3) The First World War
- HIST 388 (3) The Second World War
- HIST 438 (3) Topics in Cold War History
- JWST 240 (3) The Holocaust
- PHIL 237 (3) Contemporary Moral Issues
- PHIL 334 (3) Ethical Theory
- POLI 212 (3) Government and Politics - Developed World
- POLI 244 (3) International Politics: State Behaviour
- POLI 322 (3) Political Change in South Asia
- POLI 345 (3) International Organizations
- POLI 351 (3) The Causes of Major Wars
- POLI 360 (3) Security: War and Peace
- POLI 440 (3) Civil-Military Relations
- POLI 450 (3) Peacebuilding
Theme 3: Global Well-Being and Development

Broad-based, interdisciplinary topics will allow students to study current issues of social importance ranging from: poverty and inequality, health promotion and the environment, sustainability, and natural resource management. Students will be prepared to apply business practices to the protection of the vulnerable and the planet. Students will be poised to work for multinationals, governments, or non-governmental organizations.

B.A. Minor Concentration in Anthropology (18 credits)
B.A. Minor Concentration in Economics* (18 credits)
B.A. Minor Concentration in Geography (18 credits)
B.A. Minor Concentration in International Development Studies (18 credits)
B.A. Minor Concentration in Psychology (18 credits)
B.A. Minor Concentration in Social Studies of Medicine (18 credits)
B.A. Minor Concentration in Sociology (18 credits)
B.A. Minor Concentration in Environment: McGill School of Environment (18 credits)
B.Sc. Minor Concentration in Environment: McGill School of Environment (18 credits)
B.Sc. Field Study Minor (18 credits)

* Students should choose Economics (ECON) courses related to the environment, development, and health. Course numbers above ECON 209 (excluding ECON 295) are required, with at least 6 credits at the 300, 400, or 500 levels. Credits for the introductory sequence MGCR 293 and ECON 295 that are prerequisites for 300-level courses in economics do not count as part of this Minor Concentration. ECON 227 will not count if it is taken to meet other B.Com. requirements.

Language Component (9-12 credits)

9 credits of language in First- or Second-Level EAST (Asian Languages and Literature)*

or

9 credits of ISLA 521D1/D2 Introductory Arabic**

* Students may choose to complete additional credits in Japanese, Chinese or Korean for a total of 18 credits. Only 9 credits of EAST languages will count toward the Major and any optional additional credits will count as electives or toward another component if the student has sufficient credits to complete it within their degree. Students may not exceed the total credits required to graduate in order to complete these additional language credits.

** Students with no prior knowledge of Arabic may choose two levels of Arabic. Only ISLA 521 will count toward the Major and any additional optional credits in ISLA 522 or 523 will count as electives.

OR

12 credits of language courses, at the 500 level or lower, chosen from ONE of the following Subject Codes:

CLAS (Classics) [Modern Greek]
EAST (East Asian) - Third and Fourth Level
FREN (French)
FRSL (French as a Second Language)
GERM (German Studies) [German]
HISP (Hispanic Studies) [Spanish, Portuguese]
***ISLA (Middle East Studies) [Lower and Higher Intermediate Level Arabic, Turkish, Urdu, Persian]
****ITAL (Italian Studies) [Italian]
JWST (Jewish Studies) [Hebrew, Yiddish]
*** Students placed in Lower Intermediate Arabic will complete ISLA 522D1/D2 and ISLA 523D1/D2 for a total of 12 credits.

**** Students wishing to register for ITAL 205 should do so in their first year as this course is open only to U0 and U1 students. ITAL 206 is open to U0, U1, and U2 students. ITAL 210, ITAL 215, and ITAL 216 can be taken by all students.

Note: Registration processes for language courses vary by department, but usually involve placement tests or departmental approval. Students should consult with the individual departments to ensure that they register for the appropriate level.

Experiential Learning Component (0-3 credits)

International Exchange Component

Students complete at least one term of exchange or an international educational experience approved by the BCom SAO. Credits received for courses successfully completed while abroad will count towards other components of the Major in International Management as determined by the program/exchange adviser.

OR

Internship Component

Students may complete a 3-credit internship as part of their experiential credit. The internship will consist of a minimum of 150 hours of work over a period of 8-12 weeks at an approved host institution. The institution should be located either overseas or have an international focus. Major in International Management students who are enrolled in minor concentrations in the Faculty of Arts may choose to complete internship courses in the Faculty of Arts. Please see "Faculty of Arts Internship Program" or refer to the Arts Internships website for requirements, including hours and weeks required and CGPA cut-offs.

BUSA 497 (3) Internship in International Business

OR

Research Component

BUSA 401 (3) Independent Studies in International Business

NOTE: There are CGPA requirements for exchanges and internship courses. Students without the minimum CGPA requirement must consult the Major in International Management Adviser in the BCom office to arrange for an alternative.

9.9.8.6 Bachelor of Commerce (B.Com.) - Major Labour-Management Relations and Human Resources (30 credits)

Revision, August 2011. Start of revision.

Mentor: Professor R. Hebdon

This 30-credit Major provides students with a general understanding of employer-employee relations and human resources, including labour unions, laws that regulate the employment relationship, and human resource policies and practices. Students acquire knowledge in various required aspects of labour relations, labour markets, and human resources. The program provides flexibility for students to take a wide range of courses related to the required topics in the disciplines of law, organization behaviour, sociology, economics, and industrial relations.

Required Courses (12 credits)

INDR 294 (3) Introduction to Labour-Management Relations
INDR 494 (3) Labour Law
INDR 496 (3) Collective Bargaining
ORGB 423 (3) Human Resources Management

Complementary Courses (18 credits)

Selected from:

ECON 306 (3) Labour Markets and Wages
INDR 449 (3) Occupational Health and Safety
INDR 459 (3) International Employment Relations
INDR 492 (3) Globalization and Labour Policy
INDR 495 (3) Labour Relations: Public Sector
INDR 497 (3) Contract Administration
ORGB 321 (3) Leadership
ORGB 325 (3) Negotiations and Conflict Resolution
ORGB 380 (3) Cross Cultural Management
ORGB 420 (3) Managing Organizational Teams
ORGB 421 (3) Managing Organizational Change
ORGB 435 (3) Women as Global Leaders and Managers
ORGB 440 (3) Career Theory and Development
ORGB 525 (3) Compensation Management
SOCI 312 (3) Sociology of Work and Industry
SOCI 321 (3) Gender and Work

Revision, August 2011. End of revision.

9.9.8.7 Bachelor of Commerce (B.Com.) — Major Marketing (30 credits)

Mentors: Professors M.S. Jo, A. Mukherjee

This 30-credit Major is designed to provide students with a strong background in marketing to prepare them for the wide variety of marketing careers available. The Major is most appropriate for those students seeking a career in brand management, small business marketing, selling and sales management, and business-to-business marketing.

Required Courses (15 credits)

MRKT 354 (3) Marketing Management 2
MRKT 357 (3) Marketing Planning 1
MRKT 451 (3) Marketing Research
MRKT 452 (3) Consumer Behaviour
MRKT 453 (3) Advertising Management

Complementary Courses (15 credits)

Five courses selected from:

BUSA 464 (3) Management of Small Enterprises
MRKT 351 (3) Marketing and Society
MRKT 355 (3) Services Marketing
MRKT 365 (3) New Products
MRKT 438 (3) Brand Management
MRKT 455 (3) Sales Management
MRKT 456 (3) Business to Business Marketing
MRKT 459 (3) Retail Management
MRKT 461 (3) Advertising Practicum
MRKT 483 (3) International Marketing Management
MRKT 557 (3) Marketing Productivity

9.9.8.8 Bachelor of Commerce (B.Com.) - Major Concentration Mathematics for Management Students (39 credits)

Mentor: Professor A. Hundemer; Department of Mathematics and Statistics, Faculty of Science

This program is comprised of 39 credits.
Students entering the Major Concentration in Mathematics are normally expected to have completed MATH 133, MATH 140, and MATH 141 or their equivalents. Otherwise, they will be required to make up any deficiencies in these courses over and above the 39 credits required by the program.

### Required Courses (30 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 235</td>
<td>3</td>
<td>Algebra 1</td>
</tr>
<tr>
<td>MATH 236</td>
<td>3</td>
<td>Algebra 2</td>
</tr>
<tr>
<td>MATH 242</td>
<td>3</td>
<td>Analysis 1</td>
</tr>
<tr>
<td>MATH 243</td>
<td>3</td>
<td>Analysis 2</td>
</tr>
<tr>
<td>MATH 314</td>
<td>3</td>
<td>Advanced Calculus</td>
</tr>
<tr>
<td>MATH 315</td>
<td>3</td>
<td>Ordinary Differential Equations</td>
</tr>
<tr>
<td>MATH 323</td>
<td>3</td>
<td>Probability</td>
</tr>
<tr>
<td>MATH 324*</td>
<td>3</td>
<td>Statistics</td>
</tr>
<tr>
<td>MGSC 373</td>
<td>3</td>
<td>Operations Research 1</td>
</tr>
</tbody>
</table>

* Credits for MATH 324 are counted toward Management Core, where they replace MGCR 271.

### Complementary Courses (9 credits)

6 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 204**</td>
<td>3</td>
<td>Principles of Statistics 2</td>
</tr>
<tr>
<td>MATH 316</td>
<td>3</td>
<td>Complex Variables</td>
</tr>
<tr>
<td>MATH 317</td>
<td>3</td>
<td>Numerical Analysis</td>
</tr>
<tr>
<td>MATH 319</td>
<td>3</td>
<td>Introduction to Partial Differential Equations</td>
</tr>
<tr>
<td>MATH 326</td>
<td>3</td>
<td>Nonlinear Dynamics and Chaos</td>
</tr>
<tr>
<td>MATH 340</td>
<td>3</td>
<td>Discrete Structures 2</td>
</tr>
<tr>
<td>MATH 407</td>
<td>3</td>
<td>Dynamic Programming</td>
</tr>
<tr>
<td>MATH 410</td>
<td>3</td>
<td>Majors Project</td>
</tr>
<tr>
<td>MATH 417</td>
<td>3</td>
<td>Mathematical Programming</td>
</tr>
<tr>
<td>MATH 423***</td>
<td>3</td>
<td>Regression and Analysis of Variance</td>
</tr>
</tbody>
</table>

3 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGSC 372***</td>
<td>3</td>
<td>Advanced Business Statistics</td>
</tr>
<tr>
<td>MGSC 479</td>
<td>3</td>
<td>Applied Optimization</td>
</tr>
<tr>
<td>MGSC 575</td>
<td>3</td>
<td>Applied Time Series Analysis Managerial Forecasting</td>
</tr>
<tr>
<td>MGSC 578</td>
<td>3</td>
<td>Simulation of Management Systems</td>
</tr>
</tbody>
</table>

** MATH 204 cannot be taken for credit after credit for MATH 324 has been obtained. The two courses can be taken concurrently. Students should consult the rules for credit for Statistics courses in the Course Overlap section.

*** MGSC 372 and MATH 423 cannot both be taken for program credit.

### 9.9.8.9 Bachelor of Commerce (B.Com.) - Major Psychology for Management Students (30 credits)

Mentor: Professor H. Vough

This Major is comprised of 30 credits, of which 24 are taken in Psychology and 6 are taken in Management.

The Desautels Faculty of Management, in collaboration with the Psychology Department, Faculty of Science, offers programs of study in organizational and consumer psychology leading to the B.Com. degree. These programs concentrate on providing an education in the fundamentals of experimental and social psychology. In view of rapid changes in practical methods and professional techniques employed by managers and professional consultants, broad training in such fundamentals is seen as excellent preparation for graduate school in psychology and management as well as for a successful managerial career.
**Required Courses (12 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 213</td>
<td>3</td>
<td>Cognition</td>
</tr>
<tr>
<td>PSYC 215</td>
<td>3</td>
<td>Social Psychology</td>
</tr>
<tr>
<td>PSYC 301</td>
<td>3</td>
<td>Animal Learning &amp; Theory</td>
</tr>
<tr>
<td>PSYC 333</td>
<td>3</td>
<td>Personality and Social Psychology</td>
</tr>
</tbody>
</table>

**Complementary Courses (18 credits)**

12 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 211</td>
<td>3</td>
<td>Introductory Behavioural Neuroscience</td>
</tr>
<tr>
<td>PSYC 212</td>
<td>3</td>
<td>Perception</td>
</tr>
<tr>
<td>PSYC 310</td>
<td>3</td>
<td>Intelligence</td>
</tr>
<tr>
<td>PSYC 328</td>
<td>3</td>
<td>Health Psychology</td>
</tr>
<tr>
<td>PSYC 331</td>
<td>3</td>
<td>Inter-Group Relations</td>
</tr>
<tr>
<td>PSYC 332</td>
<td>3</td>
<td>Introduction to Personality</td>
</tr>
<tr>
<td>PSYC 340</td>
<td>3</td>
<td>Psychology of Language</td>
</tr>
<tr>
<td>PSYC 341</td>
<td>3</td>
<td>The Psychology of Bilingualism</td>
</tr>
<tr>
<td>PSYC 351</td>
<td>3</td>
<td>Research Methods in Social Psychology</td>
</tr>
<tr>
<td>PSYC 352</td>
<td>3</td>
<td>Cognitive Psychology Laboratory</td>
</tr>
<tr>
<td>PSYC 403</td>
<td>3</td>
<td>Modern Psychology in Historical Perspective</td>
</tr>
<tr>
<td>PSYC 406</td>
<td>3</td>
<td>Psychological Tests</td>
</tr>
<tr>
<td>PSYC 408</td>
<td>3</td>
<td>Principles of Cognitive Behaviour Therapy</td>
</tr>
<tr>
<td>PSYC 451</td>
<td>3</td>
<td>Human Factors Research and Techniques</td>
</tr>
<tr>
<td>PSYC 471</td>
<td>3</td>
<td>Human Motivation</td>
</tr>
<tr>
<td>PSYC 473</td>
<td>3</td>
<td>Social Cognition and the Self</td>
</tr>
<tr>
<td>PSYC 474</td>
<td>3</td>
<td>Interpersonal Relationships</td>
</tr>
<tr>
<td>PSYC 510</td>
<td>3</td>
<td>Statistical Analysis of Tests</td>
</tr>
<tr>
<td>PSYC 535</td>
<td>3</td>
<td>Advanced Topics in Social Psychology</td>
</tr>
</tbody>
</table>

AND 6 credits taken in one of the following two options:

**Organizational Psychology Option**

6 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDR 294</td>
<td>3</td>
<td>Introduction to Labour-Management Relations</td>
</tr>
<tr>
<td>ORGB 321</td>
<td>3</td>
<td>Leadership</td>
</tr>
<tr>
<td>ORGB 325</td>
<td>3</td>
<td>Negotiations and Conflict Resolution</td>
</tr>
<tr>
<td>ORGB 380</td>
<td>3</td>
<td>Cross Cultural Management</td>
</tr>
<tr>
<td>ORGB 409</td>
<td>3</td>
<td>Organizational Research Methods</td>
</tr>
<tr>
<td>ORGB 420</td>
<td>3</td>
<td>Managing Organizational Teams</td>
</tr>
<tr>
<td>ORGB 421</td>
<td>3</td>
<td>Managing Organizational Change</td>
</tr>
<tr>
<td>ORGB 423</td>
<td>3</td>
<td>Human Resources Management</td>
</tr>
<tr>
<td>ORGB 434</td>
<td>3</td>
<td>Topics in Organizational Behaviour 1</td>
</tr>
<tr>
<td>ORGB 435</td>
<td>3</td>
<td>Women as Global Leaders and Managers</td>
</tr>
</tbody>
</table>

OR
Consumer Psychology Option
6 credits selected from:
- MRKT 451 (3) Marketing Research
- MRKT 452 (3) Consumer Behaviour
- MRKT 453 (3) Advertising Management

9.9.8.10 Bachelor of Commerce (B.Com.) - Major Concentration Statistics for Management Students (39 credits)
Mentor: Professor R. Steele; Department of Mathematics and Statistics, Faculty of Science
This program is comprised of 39 credits.
Students entering the Major concentration in Statistics are normally expected to have completed MATH 133, MATH 140, and MATH 141 or their equivalents. Otherwise they will be required to make up any deficiencies in these courses over and above the 39 credits required by the program.

Required Courses (27 credits)
- MATH 222 (3) Calculus 3
- MATH 223 (3) Linear Algebra
- MATH 242 (3) Analysis 1
- MATH 243 (3) Analysis 2
- MATH 314 (3) Advanced Calculus
- MATH 323 (3) Probability
- MATH 324* (3) Statistics
- MATH 423 (3) Regression and Analysis of Variance
- MGSC 373 (3) Operations Research 1

* Credits for MATH 324 are counted toward Management Core, where they replace MGCR 271.

Complementary Courses (12 credits)
6 credits selected from:
- MGSC 479 (3) Applied Optimization
- MGSC 575 (3) Applied Time Series Analysis Managerial Forecasting
- MGSC 578 (3) Simulation of Management Systems

6 credits selected from:
- MATH 204** (3) Principles of Statistics 2
- MATH 315 (3) Ordinary Differential Equations
- MATH 340 (3) Discrete Structures 2
- MATH 410 (3) Majors Project
- MATH 447 (3) Introduction to Stochastic Processes
- MATH 523 (4) Generalized Linear Models
- MATH 524 (4) Nonparametric Statistics
- MATH 525 (4) Sampling Theory and Applications

** MATH 204 cannot be taken for credit after credit for MATH 324 has been obtained. The two courses can be taken concurrently. Students should consult the rules for credit for Statistics courses in the course overlap section.
9.9.9 Honours

An Honours program is available in Economics and in Investment Management. Joint Honours programs are available in Economics and Accounting and in Economics and Finance.

The difference between the Honours and Major programs is not one of quantity but rather of quality, the Honours program involving study in greater depth. Students normally register for the Honours programs in U1 but special arrangements may be made for students wishing to enter the program at the beginning of U2.

Graduation with an Honours standing normally requires a minimum CGPA of 3.00 and an average of 3.00 in the specified courses of the Honours programs, although academic units may set higher requirements for their program GPA. The minimum grade acceptable in an Honours course is B-, although academic units may set a higher requirement for grades in their program.

Honours students who satisfy the 6-credit Statistics requirement by taking MGCR 271 and MGSC 372 (or ECON 227D1 & D2) must complete ECON 468 and ECON 469 to fulfill the program requirements in Economics for the following programs: Honours in Economics for Management Students, Joint Honours in Economics and Accounting, and Joint Honours in Economics and Finance.

9.9.9.1 Bachelor of Commerce (B.Com.) - Honours Economics (42 credits)

Mentors in Economics: Professors M. Sinitsyn, E. Strumpf, and J-M Dufour; Department of Economics, Faculty of Arts


This program is comprised of 42 credits of Honours Economics courses (9 credits of which are counted as core credits). Graduation with an Honours standing requires a minimum CGPA of 3.00 and a minimum program GPA of 3.00.

Calculus 1 and 2 are required for entering this Honours program. Please see section "120-credit program, Freshman course distribution" for a detailed explanation regarding Calculus 1 and 2. It is also important to check on its Statistics requirements, which are listed on the Department's website at: http://www.mcgill.ca/economics.

**Required Courses (27 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 250D1*</td>
<td>3</td>
<td>Introduction to Economic Theory: Honours</td>
</tr>
<tr>
<td>ECON 250D2*</td>
<td>3</td>
<td>Introduction to Economic Theory: Honours</td>
</tr>
<tr>
<td>ECON 257D1**</td>
<td>3</td>
<td>Economic Statistics - Honours</td>
</tr>
<tr>
<td>ECON 257D2**</td>
<td>3</td>
<td>Economic Statistics - Honours</td>
</tr>
<tr>
<td>ECON 352D1***</td>
<td>3</td>
<td>Macroeconomics - Honours</td>
</tr>
<tr>
<td>ECON 352D2***</td>
<td>3</td>
<td>Macroeconomics - Honours</td>
</tr>
<tr>
<td>ECON 450D1</td>
<td>3</td>
<td>Advanced Economic Theory - Honours</td>
</tr>
<tr>
<td>ECON 450D2</td>
<td>3</td>
<td>Advanced Economic Theory - Honours</td>
</tr>
<tr>
<td>ECON 468</td>
<td>3</td>
<td>Econometrics 1 - Honours</td>
</tr>
</tbody>
</table>

* 3 of the 6 credits for ECON 250D1/D2 exempt MGCR 293 in Management Core.

** 3 of the 6 credits for ECON 257D1/D2 exempt MGCR 271 in Management Core.

*** 3 of the 6 credits for ECON 352D1/D2 exempt ECON 295 in Management Core.

**Complementary Courses (15 credits)**

3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON 460</td>
<td>3</td>
<td>History of Thought 1 - Honours</td>
</tr>
<tr>
<td>ECON 461</td>
<td>3</td>
<td>History of Thought 2 - Honours</td>
</tr>
<tr>
<td>ECON 469</td>
<td>3</td>
<td>Econometrics 2 - Honours</td>
</tr>
</tbody>
</table>

and 12 credits of Economics courses at the 300, 400, or 500 level, approved by an Honours adviser. Normally at least 9 of the 12 will be at the 400 or 500 level.

Note: Honours students are not permitted to register for general Economics courses where an Honours course in the same field is offered.

9.9.9.2 Bachelor of Commerce (B.Com.) - Honours Investment Management (45 credits)

Mentors: Professors J. Ericsson and K. Lester
The B.Com. Honours Investment Management prepares students for a career in financial asset management, either on the buy side working with active portfolio allocation or on the sell-side, working for brokerage firms. The program gives students a rigorous training in accounting, statistics, and finance. The program enables students to analyze financial statements, perform company valuations, construct efficient portfolios with appropriate risk profiles, and manage risk using dynamic trading strategies and derivative instruments.

Students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.0. A grade of B- or better must be achieved in all courses counted toward this program. Students who do not satisfy all the requirements of the Honours program may still receive a Major in Finance.

The B.Com. Honours Investment Management is a limited enrolment program and is by application only for students entering their U2 year. For admission requirements, please refer to the website or contact the BCom Student Affairs Office.

Required Courses (45 credits)

- ACCT 354 (3) Financial Statement Analysis
- ACCT 452 (3) Financial Reporting Valuation
- FINE 342 (3) Finance 2
- FINE 440 (3) Honours Investment Management Research Project 1
- FINE 441 (3) Investment Management
- FINE 443 (3) Applied Corporate Finance
- FINE 448 (3) Financial Derivatives
- FINE 449 (3) Market Risk Models
- FINE 450 (3) Honours Investment Management Research Project 2
- FINE 451 (3) Fixed Income Analysis
- FINE 455 (3) Alternative Investments
- FINE 480 (3) Global Investments
- FINE 482 (3) International Finance 1
- FINE 541 (3) Applied Investments
- MGSC 372 (3) Advanced Business Statistics

9.9.9.3 Bachelor of Commerce (B.Com.) - Joint Honours Economics and Accounting (54 credits)

Mentor in Accounting: Professor P. Levy
Mentor in Economics: Professors M. Sinitsyn, E. Strumpf and J-M Dufour; Department of Economics, Faculty of Arts

Please consult the Economics Department website.

The B.Com. Joint Honours in Economics and Accounting requires the completion of 30 specified credits of Honours courses listed in the Economics Honours Program (9 credits of which are counted as core credits) and 24 specified credits for Accounting. This program is designed to take advantage of both McGill's Accounting and Economics course offerings to produce a student who is well trained in these two complementary areas.

Calculus 1 and 2 are required for entering this Honours program. Please consult the "120-credit program, Freshman course distribution" section for a detailed explanation regarding Calculus 1 and 2. It is also important to check on its statistics requirements, which are listed on the Department's website.

To earn the Joint Honours in Economics and Accounting designation, students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.00. Students must achieve a grade of B- or better in all Accounting courses.

Required Courses (39 credits)

- ACCT 351 (3) Intermediate Financial Accounting 1
- ACCT 352 (3) Intermediate Financial Accounting 2
- ACCT 361 (3) Intermediate Management Accounting 1
- ACCT 455 (3) Development of Accounting Thought
- ECON 250D1* (3) Introduction to Economic Theory: Honours
- ECON 250D2* (3) Introduction to Economic Theory: Honours
- ECON 257D1** (3) Economic Statistics - Honours
- ECON 257D2** (3) Economic Statistics - Honours
- ECON 352D1*** (3) Macroeconomics - Honours
Complementary Courses (15 credits)

3 credits from the following:

- ECON 460 (3) History of Thought 1 - Honours
- ECON 461 (3) History of Thought 2 - Honours
- ECON 469 (3) Econometrics 2 - Honours

12 credits from the following:

- ACCT 354 (3) Financial Statement Analysis
- ACCT 362 (3) Intermediate Management Accounting 2
- ACCT 385 (3) Principles of Taxation
- ACCT 452 (3) Financial Reporting Valuation
- ACCT 453 (3) Advanced Financial Accounting
- ACCT 463 (3) Advanced Management Accounting
- ACCT 475 (3) Principles of Auditing
- ACCT 486 (3) Business Taxation 2

9.9.9.4 Bachelor of Commerce (B.Com.) - Joint Honours Economics and Finance (54 credits)

Mentors in Economics: Professors M. Sinitsyn, E. Strumpf, and J-M Dufour; Department of Economics, Faculty of Arts
Mentors in Finance: Professors L. Barras, M. Bouvard, A. Malkhozov, and S. Betermier
International Stream Mentor: Professor A. Durnev
Finance Case Competition Mentors: Professors M. Chaudhury and V. di Pietro

Please consult the Economics department website.

The B.Com. Joint Honours in Economics and Finance requires the completion of 30 credits of Honours Economics courses (9 credits of which are counted as core credits) and 24 credits in Finance. This program is designed to take advantage of both McGill's Finance and Economics course offerings to produce a student who is well trained in these two complementary areas.

Calculus 1 and 2 are required for entering this Honours program. Please consult the section "120-credit program, Freshman course distribution" for a detailed explanation regarding Calculus 1 and 2. It is also important to check on its statistics requirements, which are listed on the Department's website at http://www.mcgill.ca/economics.

To earn the Honours in Economics and Finance designation, students must maintain a minimum CGPA of 3.00 and maintain a minimum program GPA of 3.00. Students must achieve a grade of B- or better in all Finance courses.

Required Courses (39 credits)

- ECON 250D1* (3) Introduction to Economic Theory: Honours
- ECON 250D2* (3) Introduction to Economic Theory: Honours
- ECON 257D1** (3) Economic Statistics - Honours
- ECON 257D2** (3) Economic Statistics - Honours
- ECON 352D1*** (3) Macroeconomics - Honours

* 3 of the 6 credits for ECON 250D1/D2 exempt MGCR 293 in Management Core.
** 3 of the 6 credits for ECON 257D1/D2 exempt MGCR 271 in Management Core.
*** 3 of the 6 credits for ECON 352D1/D2 exempt ECON 295 in Management Core.
ECON 352D2*** (3) Macroeconomics - Honours
ECON 450D1 (3) Advanced Economic Theory -Honours
ECON 450D2 (3) Advanced Economic Theory -Honours
ECON 468 (3) Econometrics 1 - Honours
FINE 342 (3) Finance 2
FINE 441 (3) Investment Management
FINE 443 (3) Applied Corporate Finance
FINE 547 (3) Advanced Finance Seminar

* 3 of the 6 credits for ECON 250D1/D2 exempt MGCR 293 in Management Core.
** 3 of the 6 credits for ECON 257D1/D2 exempt MGCR 271 in Management Core.
*** 3 of the 6 credits for ECON 352D1/D2 exempt ECON 295 in Management Core.

Complementary Courses (15 credits)
3 credits from the following:
ECON 460 (3) History of Thought 1 - Honours
ECON 461 (3) History of Thought 2 - Honours
ECON 469 (3) Econometrics 2 - Honours

12 credits from the following:
FINE 434 (3) Topics in Finance 1
FINE 448 (3) Financial Derivatives
FINE 449 (3) Market Risk Models
FINE 451 (3) Fixed Income Analysis
FINE 480 (3) Global Investments
FINE 482 (3) International Finance 1
FINE 492 (3) International Finance 2
FINE 541D1 (1.5) Applied Investments
FINE 541D2 (1.5) Applied Investments

9.10 Academic Staff
Adler, Nancy J.; B.A., M.B.A., Ph.D.(Calif.-LA); Professor, Organizational Behaviour (Samuel Bronfman Chair in Management)
Animesh, Animesh; B.A.(Delhi), M.I.S.(Carn. Mell), Ph.D.(Md.); Assistant Professor, Information Systems
Armstrong, Donald E.; B.A., B.Com.(Alta.), Ph.D.(McG.); Emeritus Professor, Managerial Economics
Barbulescu, Roxana; B.A.(Stan.), M.S., Ph.D.(INSEAD); Assistant Professor, Organizational Behaviour
Barras, Laurent; B.B.S., M.E.F. & Ph.D.(HEC-U. of Geneva); Assistant Professor, Finance
Basselier, Geneviève; B.Com., M.Sc.(HEC), Ph.D.(Br. Col.); Assistant Professor, Information Systems
Béchara, Antoine; Ph.D.(Tor.); Professor & Scientist (joint appt. Medicine and Management)
Betermier, Sebastien; A.B.(Calif., Davis), M.S., Ph.D.(Calif., Berk.); Assistant Professor, Finance
Bouvard, Matthieu; M.Sc.(HEC, Paris), Ph.D.(Toulouse); Assistant Professor, Finance
Boyaci, Tamer; B.S.(Middle East Tech.,Turkey), M.S., Ph.D.(Col.); Associate Professor, Operations Management
Brenner, Reuven; B.Sc., M.A., Ph.D.(Hebrew); Professor, Finance (Repap Professor of Economics)
Breitner, Leslie; B.A.(Wisc.), M.B.A.(Simmons), D.B.A.(Boston); Faculty Lecturer, Accounting

Carriero, Francesca; Laurea-Law(U. di Bari), Ph.D.(USC); Associate Professor, Finance

Cecere, Ralph; B.Com., G.D.P.A.(McG.); Faculty Lecturer, Accounting

Cha, Sandra; B.A., M.A., Ph.D.(Harv.); Assistant Professor, Organizational Behaviour

Chakrabarti, Abhirup; B.S.(Calc.), M.S.(Singapore, NUS), Ph.D.(Duke); Assistant Professor, Strategy and Organization

Chaudhury, Mohammed; B.A., M.A.(Dhaka), M.A.(Wat.), Ph.D.(S. Fraser); Faculty Lecturer, Finance

Chauvin, Louis; B.A.(Ott.), M.A., Ph.D.(C’dia); Faculty Lecturer, Strategy and Organization

Cohen, Lisa; B.A.(Kalamazoo), M.B.A.(Duke), Ph.D.(Calif., Berk.); Assistant Professor, Organizational Behaviour

Chaudhury, Mohammed; B.A., M.A.(Dhaka), M.A.(Wat.), Ph.D.(S. Fraser); Faculty Lecturer, Finance

Chauvin, Louis; B.A.(Ott.), M.A., Ph.D.(C’dia); Faculty Lecturer, Strategy and Organization

Cohen, Lisa; B.A.(Kalamazoo), M.B.A.(Duke), Ph.D.(Calif., Berk.); Assistant Professor, Organizational Behaviour

Croitoru, Benjamin; DIAF(l’Institut de Statistique de l’Université Pierre et Marie Curie), Ph.D.(Penn.); Associate Professor, Finance

David, Robert; B.Eng., M.B.A.(McG.), Ph.D.(C’dia); Associate Professor, Strategy and Organization

De Motta, Adolfo; B.A.(Universidad De Valencia, Spain), Ph.D.(MIT); Assistant Professor, Finance

Di Pietro, Vadim; B.Eng.(McG.), M.A.(Tor.), Ph.D.(N’western); Faculty Lecturer, Finance

Donovan, Richard G.; B.Com.(McG.), G.D.I.T.(C’dia); Faculty Lecturer, Information Systems

Dotzel, Thomas; M.B.A.(Texas, Arlington), Ph.D.(Texas A & M); Assistant Professor, Marketing

Drury, Donald; B.Com, M.B.A.(McM.), Ph.D.(N’western); Emeritus Professor, Accounting

Dubé, Laurette; B.Sc.(Laval), M.B.A.(HEC), M.P.S., Ph.D.(C’dia); Professor, Marketing (James McGill Professor)

Durnev, Artyom; M.A.(Moscow), M.A.(Penn. St.), Ph.D.(Mich.); Assistant Professor, Finance

Eriksson, Jan; M.Sc., Ph.D.(Stockholm School of Economics); Associate Professor, Finance

Errunza, Vihang R.; B.S., B.S.(Tech.)(Bom.), M.S., Ph.D.(Calif., Berk.); Professor, Finance (Bank of Montreal Professor of Finance and Banking)

Etemad, Hamid; M.Eng.(Tehran), M.Sc., M.B.A., Ph.D.(Calif., Berk.); Associate Professor, Marketing

Etzioni, Dor; B.Sc.(Ben Gurion), M.Sc.(Tel Aviv), Ph.D.(IESE-Univ. of Navarra); Assistant Professor, Strategy and Organization

Faraj, Samer; B.S.(Milwaukee), M.A.(MIT), Ph.D.(Boston); Associate Professor, Information Systems (CRC Chair – SSHRC – Tier 2)

Fortin, Catherine; B.Com., G.D.P.A.(McG.); Faculty Lecturer, Accounting (Director – CA Program)

Fortin, Steve; Acc. Sci.(UQ, Rimouski), Ph.D.(Wat.); Associate Professor, Accounting

Gagnon, Suzanne; B.A.(Br. Col.), M.Sc.(Oxf.), Ph.D.(Lanc. – pending); Faculty Lecturer, Organizational Behaviour

Gialloreto, Louis P.; B.A.(W. Ont.), M.B.A., Ph.D.(Calif., Berk.); Associate Professor, Marketing

Goffin, Jean-Louis; B.Eng., M.Sc.(Brussels), M.Sc., Ph.D.(Calif., Berk.); Emeritus Professor, Operations Management

Goldman, Larry; B.Com.(C’dia), D.P.A.(McG.), C.A.; Faculty Lecturer, Accounting

Goyenko, Ruslan; B.S.(Donetsk-Ukraine), M.A.(C.E.U., Budapest), M.S.(Siena-Italy), M.B.A., Ph.D.(Ind.); Assistant Professor, Finance

Graham, Margaret; M.A., M.B.A., Ph.D.(Harv.); Associate Professor, Strategy and Organization

Gumus, Mehmet; B.S.(Turkey), M.S., M.A., Ph.D.(Mich.); Assistant Professor, Operations Management

Hammmari, Larbi; B.Com., M.B.A.(Laval); Faculty Lecturer, Finance

Han, Kunsoo; B.S., M.S.(KAIST), Ph.D.(Ohio St.); Assistant Professor, Information Systems

Hart, Derek; B.Sc., M.B.A.(McG.), M.Sc.(C’dia); Faculty Lecturer, Operations Management

Hebden, Robert; B.A., M.A., Ph.D.(Tor.); Associate Professor, Organizational Behaviour-Industrial Relations

Hewlin, Patricia; B.A.(Binghamton Univ.), M.B.A., Ph.D.(Stern. N.Y.); Assistant Professor, Organizational Behaviour

Husung, Ruthanne; B.A.(Alta.), M.Sc.(LSE), Ph.D.(MIT); Assistant Professor, Organizational Behaviour

Hwang, Min Ha; B.S(Seoul Nat. Univ.), Ph.D.(MIT), Ph.D.(Anderson-UCLA), Assistant Professor, Marketing

Jaeger, Alfred M.; B.Sc.(N’western), M.B.A., Ph.D.(Stan.); Associate Professor, Organizational Behaviour

Jo, Myung-Soor; B.Com.(Hankuk U., Korea), M.B.A.(Mich.), M.S.(Ill.), Ph.D.(Colo.); Associate Professor, Marketing

Jorgensen, Jan; B.A., M.A.(N. Carolina, Chapel Hill), Ph.D.(McG.); Associate Professor, Strategy and Organization

Kalytso, Paul; B.Com.(Kiev Nat. Univ., Ukraine), M.B.A., Ph.D.(C’dia); Assistant Professor, Accounting

Kanungo, Rabindra N.; B.A., M.A.(Patna), Ph.D.(McG.); Professor Emeritus, Organizational Behaviour
Lapointe, Liette; B.A., M.Sc.(Montr.), Ph.D.(HEC); Associate Professor, Information Systems
Lee, Mary Dean; B.A.(Eckerd), M.Ed.(Temple), M.A.(S. Florida), Ph.D.(Yale); Professor, Organizational Behaviour
Levy, Philippe; B.Com.(C'dia), D.P.A., M.B.A.(McG.); Faculty Lecturer, Accounting
Li, Shanling; M.S.(Georgia), Ph.D.(Texas); Associate Professor, Operations Management (Associate Dean, Research & Intl Relns.)
Li, Yuan; B.A., M.A.(Tsinghua Univ., Beijing), Ph.D.(USC – pending); Assistant Professor, Strategy and Organization
Loulou, Richard J.; M.Sc., Ph.D.(Calif., Berk.); Professor Emeritus, Operations Management
Madan, Sujata; B.S.(MIT), M.B.A.(Indian Inst. Manag.); Faculty Lecturer, Finance
Maguire, Steve; B.Sc.(Qu.), M.B.A.(Br. Col.), Ph.D.(HEC); Associate Professor, Strategy and Organization
Malkhazov, Aytek; DEUG(Strasbourg), DEA(Paris), M.Sc.(LSE); Ph.D. (pending)
Mathur, Sameer; B.E.(IIT), M.Sc.(Ill.-Urbana-Champaign), M.Sc., Ph.D.(Carn. Mell); Assistant Professor, Marketing
McCully, Phillip; (Stirling Univ., Scotland); Faculty Lecturer, Strategy and Organization/Entrepreneurship
Mintzberg, Henry; B.Eng.(McG.), B.A.(Sir G. Wms.), S.M., Ph.D.(MIT); Professor, Strategy and Organization (John Cleghorn Professor of Management Studies)
Mishra, Saurabh; B.A., M.A.(Delhi), M.B.A., Ph.D.(Ind.); Assistant Professor, Marketing
Moore, Karl; B.Sc.(Ambassador U.), M.B.A.(USC), Ph.D.(York); Associate Professor (part-time), Marketing, Strategy, and Organization
Mukherjee, Ashesh; B.Eng.(Jad.), M.B.A.(Indian Inst. Manag.), Ph.D.(Texas); Associate Professor, Marketing
Nain, Anrita; B.A.(Delhi), M.Sc.(Warw.), Ph.D.(Mich.); Assistant Professor Finance
Okhatovskiy, Ilya; B. A. Equivalent(Moscow St.), M.S. Equivalent(Acad. of Nat. Economy), Ph.D.(USC); Assistant Professor, Strategy and Organization
Perez-Aleman, Paola; B.Sc.(Calif., Berk.), Ph.D.(MIT); Associate Professor, Strategy and Organization
Pinsonneault, Alain; B.Com.(C'dia), M.Sc.(HEC), Ph.D.(Calif., Irvine); Professor, Information Systems (IMASCO Chair in Management Information Systems) (James McGill Professor), FRSC
Qui, Chun; B.A.(Huazhong), M.A.(S. Fraser), Ph.D.(Alta.); Assistant Professor, Marketing
Ramaprasad, Jui; B.S.(USC), Ph.D.(Calif., Irvine); Assistant Professor, Information Systems.
Ray, Saibal; B.E.(Jad.), M.E.(Asian IT), Ph.D.(Wat.); Associate Professor, Operations Management (Director – Ph.D. Program)
Sarigöllü, Emine; B.A., M.B.A.(Bogazici), M.A., Ph.D.(Penn.); Associate Professor, Marketing (Associate Dean – Student Affairs)
Sarkissian, Sergei; M.S.(Calif., Berk.), Ph.D.(Wash.); Associate Professor, Finance
Scott, Julia; M.B.A.(York), C.A., C.F.A.(W. Ont.); Faculty Lecturer, Accounting
Singer, Zvi; B.A.(Tel Aviv), M.B.A.(Wash.), Ph.D.(Calif., Berk.); Assistant Professor, Accounting
Smith, Brian E.; B.A., M.A.(Dublin), M.Sc.(Alta.), Ph.D.(Qu.); Faculty Lecturer, Operations Management
Struben, Jeroen; M.Sc.(Delft Univ. of Tech., Netherlands), Ph.D.(MIT); Assistant Professor, Strategy and Organization
Todd, Peter A.; B.Com.(McG.), Ph.D.(Br. Col.); Dean (James McGill Professor)
Toulan, Omar; B.Sc.(G'town), Ph.D.(MIT); Associate Professor, Strategy and Organization (Associate Dean – Master's Programs)
Tsang, Desmond; B.Com., M.A.(Tor.), M.S., Ph.D.(Calif., Berk.); Assistant Professor, Accounting
Vaidyanathan, Ramnath; B.Tech.(IIT, Madras), Ph.D.(Penn. – pending); Assistant Professor, Operations Management
Vakratsas, Demetrios; B.Sc.(Aristotle), M.Sc., Ph.D.(Texas); Associate Professor, Marketing
Verter, Vedat; B.S., M.S.(Bogazici), Ph.D.(Bilkent); Associate Professor, Operations Management
Vit, Gregory; B.Com.(McG.), M.B.A.(C'dia), Ph.D.(Brad.); Associate Professor (part-time), Strategy and Organization (Director – Dobson Centre for Entrepreneurial Studies)
Vough, Heather; A.B.(Wash.), Ph.D.(Ill.-Urbana-Champaign); Assistant Professor, Organizational Behaviour
Westgate, Chantal; M.B.A.(McM.); Faculty Lecturer, Organizational Behaviour-Industrial Relations
Whitmore, G. Alex; B.Sc.(Manit.), M.Sc., Ph.D.(Minn.); Professor Emeritus, Operations Management (Samuel Bronfman Professor of Management Science)
Yalovsky, Morty; B.Sc., M.Sc., Ph.D.(McG.); Associate Professor, Operations Management (Associate Dean Academic)
Younkin, Peter; B.A.(Col.), MA, Ph.D.(Calif., Berk.); Assistant Professor, Strategy and Organization

1100 2011-2012, Undergraduate Programs, Courses and University Regulations, McGill University (Published August 17, 2011)
10 Schulich School of Music

10.1 About the Faculty

McGill's Schulich School of Music is the largest university-based school for professional musical training and music research in Canada. Founded as the Conservatorium of Music in 1904, and incorporated as a Faculty in 1920, the School moved to its current location in the impressive and historic Strathcona Music Building (formerly the main section of Royal Victoria College) in 1972. During the 2004-2005 centennial season, the School added a new eight-storey building that contains the Marvin Duchow Music Library, Tanna Schulich Hall, CIRMMT (the Centre for Interdisciplinary Research in Music Media and Technology), the MMR (Multimedia Room), the Wirth Opera Studio and administrative offices.

McGill's Schulich School of Music is renowned for its orchestral, choral, opera, jazz, chamber, contemporary, and early music programs, and for its award-winning creative and research work in composition, music theory, musicology, music education, sound recording, and music technology. Pollack Hall (capacity: 600), Redpath Hall (capacity: 300 and housing the University organ) and Tanna Schulich Hall (capacity: 187) are among the busiest and best concert venues in Montreal. The intimate Clara Lichtenstein Hall (capacity: 80) is scheduled for renovation in the summer of 2011. In addition, facilities include the Wirth Opera Studio (an opera rehearsal room), and the Multimedia Complex Suite, including the Multimedia Room (a scoring stage/acoustical research lab), three isolation booths, a small recording studio, and three control rooms of different sizes. The three floors of the Marvin Duchow Music Library contain well over 100,000 scores, recordings, books, and periodicals; in addition, the Gertrude Whitley Performance Library has performing parts for over 6,000 titles.

Both old and new buildings house labs for numerous specialized functions: digital composition and electronic music, music education research, multi-channel sound recording, music perception and cognition, sound processing and control, computational modeling, and more. There are state-of-the-art classrooms, teaching studios, and over 100 practice rooms. The Centre for Interdisciplinary Research in Music Media and Technology (CIRMMT) is an inter-faculty, inter-university, international consortium of scholars that brings together researchers in music, sound recording, music technology, psychology, neuroscience, engineering, and medicine.

Current student enrolment is approximately 550 at the undergraduate level and approximately 250 at the graduate level. Teaching staff includes 60 full-time and over 100 part-time members. Students, faculty, and staff play major roles in Montreal's vibrant cultural scene, presenting over 700 concerts and events annually, as well as master classes, lectures, and symposia, all enhanced by active music student societies, a gig office, and stellar administrative and support staff.

10.2 History of the Faculty

Founded as the Conservatorium of Music in 1904, and incorporated as a Faculty in 1920, the School moved to its current location in the impressive and historic Strathcona Music Building (formerly the main section of Royal Victoria College) in 1972. It was renamed the Schulich School of Music in 2005 in honour of benefactor Seymour Schulich. During the 2004–2005 centennial season, the School added a new eight-storey building that houses the Marvin Duchow Music Library, the Gertrude Whitley Performance Library, Tanna Schulich Hall, CIRMMT (the Centre for Interdisciplinary Research in Music Media and Technology), the MMR (Multimedia Room), the Wirth Opera Studio, and administrative offices.

10.3 Academic Staff

10.3.1 Department of Music Research

Chair
Whitesell, Lloyd; B.A.(Minn.), M.A., Ph.D.(SUNY, Stony Brook); Associate Professor; History and Literature

10.3.2 Composition Area

Bouliane, Denys; B.Mus., M.Mus.(Laval), Graduate, Hochschule für Musik(Hamburg); Associate Professor; Composition, Orchestration
Cherney, Brian; B.Mus., M.Mus., Ph.D.(Tor.); Professor; Composition, Theory and Analysis, History and Literature
Ferguson, Sean; B.Mus.(Alta.), M.Mus., D.Mus.(McG.); Associate Professor; Composition; Director, CIRMMT; Director, Digital Composition Studios
Harman, Chris; Assistant Professor; Composition Area Chair; Composition
Hui, Melissa; B.Mus.(Br. Col.), M.F.A.(Calif. Inst. of Arts), D.M.A./M.M.A.(Yale); Associate Professor; Composition
Lesage, Jean; Concours, Diplôme d'études supérieures(Conservatoire de Montréal); Assistant Professor; Composition
Rea, John; B.Mus.(Wayne), M.Mus.(Tor.), M.F.A., Ph.D.(Princ.); Professor; Composition, Theory and Analysis

10.3.3 Music Education Area

Cossette, Isabelle; Premier Prix(Conservatoire de Québ.); M.Mus.(McG.), D.Mus.(Montr.); Assistant Professor; Music Education
Lorenzino, Lisa; B.Mus.(Tor.), B.Ed.(Sask.), M.A.(McG.); Faculty Lecturer; Music Education Area Chair; Music Education
Wapnick, Joel; B.A.(NYU), M.A.(SUNY), M.F.A.(Sarah L.), Ed.D.(Syrac.); Professor; Director, Music Education Research Lab; General Music Techniques

10.3.4 Music Theory Area

Biamonte, Nicole; B.F.A.(SUNY Purchase), Ph.D., M.Phil.(Yale); Assistant Professor; Theory and Analysis
Caplin, William; B.M.(USC), M.A., Ph.D.(Chic.); Professor; Theory and Analysis (James McGill Professor)
Daley, René; B.Mus.(Lawrence), M.A., M.Mus.(Mannes), Ph.D.(Mich.); Assistant Professor; Theory Area Chair; Theory and Analysis
Neidhöfer, Christoph; Graduate, Hochschule für Musik(Basel), Ph.D.(Harv.); Associate Professor; Theory and Analysis, Composition
Schubert, Peter; B.A., M.A., Ph.D.(Col.); Associate Professor; Theory and Analysis
Wild, Jonathan; B.Mus., M.A.(McG.), Ph.D.(Harv.); Assistant Professor; Theory and Analysis, Composition

10.3.5 Music Technology Area

Depalle, Philippe; B.Sc.(Paris XI & ENS Cachan), D.E.A.(Le Mans & ENS Cachan), Ph.D.(Le Mans & IRCAM); Associate Professor; Music Technology
Fujinaga, Ichiro; B.Mus., B.Sc.(Alta.), M.A., Ph.D.(McG.); Associate Professor; Music Technology Area Chair; Music Technology
McAdams, Stephen; B.Sc.(McG.), Ph.D.(Stan.), D.Sc.(Paris); Professor; Music Technology (Canada Research Chair)
Mulder, Axel; Drs. (Rijks Universiteit Groningen), Ph.D. (S. Fraser); Adjunct Professor
Scavone, Gary; B.A., B.S.(Syrac.), M.S., Ph.D.(Stan.); Associate Professor; Music Technology
Verge, Marc-Pierre; B.A., M.Sc. (Laval), Ph.D. (Eindhoven); Adjunct Professor
Wanderley, Marcelo; B.Eng.(UFFR), M.Eng.(UFSC), Ph.D.(Paris VI & IRCAM); Associate Professor; Music Technology, Gestural Control of Sound Synthesis

10.3.6 Musicianship Area

Asly, Monica; B.Mus.(McG.); Faculty Lecturer; Musicianship
Davidson, Thomas; B.Mus.(Qu.), M.Mus.(McG.), Cert. of Advanced Study(R.C.M., Lond.), A.R.C.M., L.T.C.L.; Assistant Professor; Musicianship Area Chair; Musicianship, Piano; Keyboard Proficiency Coordinator
Mariner, Justin; M.Mus., D.Mus.(McG.); Assistant Professor; Musicianship

10.3.7 Musicology Area

Barg, Lisa; B.A.(Antioch), M.A., Ph.D.(SUNY, Stony Brook); Assistant Professor; History and Literature
10.3.8 Sound Recording Area

Bech, Soren; M.Sc., Ph.D.(Technical Univ. of Denmark); Senior Technology Specialist, Bang & Olufsen; Adjunct Professor; Sound Recording

Begault, Durand; B.A.(Calif.-Santa Cruz), M.F.A.(Mills College), Ph.D.(Calif.-San Diego); Human Factors Research and Technology Division, NASA Ames Research Center; Adjunct Professor; Sound Recording

Braasch, Jonas; Dipl. Physics(Dortmund), Doct-Eng, Ph.D.(Bochum); Adjunct Professor; Sound Recording

de Francisco, Martha; Diplom-Tonmeister(Detmold); Associate Professor; Sound Recording Area Chair; Sound Recording

Epstein, Steven; Senior Executive Producer, Sony Classical; Adjunct Professor; Sound Recording

King, Richard; B.Mus.(Dal.), M.Mus.(McG.); Associate Professor; Sound Recording

Martens, William; B.A.(Miami), Ph.D.(N'western); Adjunct Professor; Sound Recording

Massenburg, George; President and Owner, GML Inc.; Associate Professor; Sound Recording (Dean's Chair in Music)

Quesnel, René; B.Mus., M.Mus., Ph.D.(McG.); Assistant Professor; Sound Recording

Walt, Herbert; mediaHYPERIUM, Inc.; Adjunct Professor

Woszczyk, Wieslaw; M.A., Ph.D.(F. Chopin Academy of Music, Warsaw); Professor; Director, Recording Studio; Sound Recording (James McGill Professor)

10.3.9 Associate Members

Guastavino, Catherine; School of Information Studies

Levitin, Daniel; Dept. of Psychology

Palmer, Caroline; Dept. of Psychology

10.3.10 Department of Performance

Chair

Lesage, Jean; Concours, Diplôme d'études supérieures(Conservatoire de Montréal); Assistant Professor; Composition

10.3.11 Brass Area

French Horn

Derome, Denys; L.Mus.(McG.); Montreal Symphony Orchestra; Instructor

Gaudreault, Jean; L.L.L.(Montr.), Graduate, Conservatoire de musique de Québec; Montreal Symphony Orchestra; Assistant Professor

Zirbel, John; B.Mus.(Wisc.); Principal Horn, Montreal Symphony Orchestra; Associate Professor
### Trumpet

- **Carroll, Edward; B.Mus., M.Mus.(Juilliard); Associate Professor**
- **DeVuyst, Russell; B.Mus.Ed.(Boston Cons.), M.M.(New England Cons.); Assistant Professor; Associate Principal Trumpet, Montreal Symphony Orchestra; Assistant Professor**
- **Dunn, Andrew; PCRAM, LRAM, PG Dip GSMD, M.A. (TVU); Assistant Professor; Brass Area Chair**
- **Merkelo, Paul; B.Mus.(Eastman); Principal Trumpet, Montreal Symphony Orchestra; Instructor**

### Trombone

- **Box, James; M.M.(S. Methodist), M.M.(Cleveland Inst. Music); Principal Trombone, Montreal Symphony Orchestra; Assistant Professor**
- **Dix, Trevor; M.Mus.(McG.); Instructor**
- **Lee, Vivian; Montreal Symphony Orchestra; Instructor**
- **Martin, David; Montreal Symphony Orchestra; Instructor**

### Tuba/Euphonium

- **Cazes, Alain; Premier Prix(Conservatoire de Montréal); Associate Professor**
- **Johnson, Sasha; Instructor**
- **Miller, Dennis; Principal Tuba, Montreal Symphony Orchestra; Associate Professor**

### Early Music Area

- **Beghin, Tom; Diplôme Supérieur(Louvain), M.A., D.M.A.(C'nell); Associate Professor; Fortepiano**
- **Bergeron, Sylvain; B.Mus.(Laval); Instructor; Lute**
- **Grew, John; L.T.C.L.(Lond.), M.Mus.(Mich.), D.D.(United Theological Coll.), LL.D.(Mt. All.); University Organist; Professor; Organ Area Chair; Organ, Harpsichord**
- **Guimond, Claire; B.Mus.(McG.); Instructor; Baroque Flute**
- **Haynes, Bruce; Ph.D. (Montr.); Adjunct Professor; Baroque Oboe**
- **Jennejohn, Matthew; B.A.(Sask.), B.Mus.(Br. Col.); Instructor; Baroque Oboe**
- **Kinslow, Valerie; B.A. (McG.); Assistant Professor; Early Music, Voice**
- **Kirk, Douglas; B.S., B.A.Mus. Hons.(Iowa), M.M.(Texas-Austin), Ph.D.(McG.); Instructor; Cornetto**
- **Knox, Hank; B.Mus., M.Mus.(McG.); Associate Professor; Continuo, Harpsichord (William Dawson Scholar); Early Music and Harpsichord Area Chair**
- **Lortie, Dominique; Instructor; Sackbut**
- **Lussier, Mathieu; Instructor; Baroque Bassoon**
- **MacMillan, Betsy; B.Mus.(W. Ont.), M.Mus.(McG.); Instructor; Viola da Gamba**
- **Maute, Matthias; Instructor; Recorder**
- **Michaud, Nathalie; B.A.(Ott.), Cert. of Interpretation(The Hague), M.A.(Montr.); Instructor; Recorder**
- **Napper, Suzie; Instructor; Baroque Cello**
- **Plouffe, Hélène; Instructor; Baroque Viola; Baroque Violin**
- **Rémillard, Chantal; B.Mus.(Montr.); Instructor; Baroque Violin**
- **Simons, Mark; B. Mus. (McG.); Instructor; Early Clarinet**

### Ensembles

- **Guest Conductors; Contemporary Music Ensemble**
- **Cazes, Alain; Premier Prix(Conservatoire de Montréal); Associate Professor; Wind Symphony, Wind Orchestra**
### 10.3.14 Jazz Area

#### Jazz Bass
- Hollins, Fraser; Instructor
- Hurley, Brian; Instructor
- Lessard, Daniel; Instructor
- Pépin, Pierre; Instructor
- Walkington, Alexander; B.Mus., M.Mus.(McG.); Instructor

#### Jazz Drums
- Doxas, Jim; B.Mus.(McG.); Instructor
- Laing, David; B.A.(McG.); Instructor
- Lambert, Michel; Instructor
- McCann, Chris; Instructor
- White, André; B.A., C'dia, M.Mus.(McG.); Associate Professor

#### Jazz Flute
- Gossage, Dave; Instructor

#### Jazz Guitar
- Amirault, Greg; B.Mus.(McG.); Instructor
- Bibace, Kenneth; B.Mus., M.Mus.(McG.); Instructor
- Clayton, Greg; Instructor
- Gauthier, Michael; Instructor
- Gearey, Jon; Instructor
- Jimenez, Carlos; B.Mus., M.Mus.(McG.); Instructor

#### Jazz Piano
- Amirault, Steve; Instructor
- Jarczyk, Jan; B.A., M.A.(Academy of Music, Cracow), Dip.(Berklee); Associate Professor
- Johnston, Jeffrey; Instructor
- Rager, Josh; B.Mus., M.Mus.(McG.); Instructor
- Roney, John; M.Mus.(McG.); Instructor
Jazz Piano
White, André; B.A.(C’dia), M.Mus.(McG.); Associate Professor

Jazz Saxophone
Bolduc, Rémi; Assistant Professor
Doxas, Chet; B.Mus., M.Mus.(McG.); Instructor
Foote, Gordon; B.Sc., M.A.(Minn.); Associate Professor
Jensen, Christine; B.Mus., M.Mus.(McG.); Instructor
Kennedy, Donny; B.Mus., M.Mus.(McG.); Instructor
Leroux, André; B.Mus.(Montr.); Instructor
Lozano, Frank; Instructor
McLean, Allan; Instructor
Miller, Joel; B.Mus.(McG.); Instructor
Turner, Dave; Instructor

Jazz Trombone
Abdul Al-Khabyyr, Muhammad; Instructor
Grott, David; Instructor

Jazz Trumpet
Couture, Jocelyn; Instructor
Dean, Kevin; B.M.E.(Iowa), M.Mus.(Miami); Professor
Di Lauro, Ron; B.Mus., M.Mus.(McG.); Instructor
Mahar, Bill; B.Mus.(McG.); Instructor
Sullivan, Joe; B.A.(Ott.), M.M.(New England Cons.); Associate Professor; Jazz Area Chair

Jazz Vibraphone
Stevenson, François; B.Mus.(McG.); B.Ed.(Ott.); Instructor

Jazz Voice
Lee, Ranee; Instructor

10.3.15 Opera Area
Hansen, Patrick; B.Mus.(Simpson), M.Mus.(Missouri); Associate Professor; Opera Director
Wachner, Julian; B.Mus., Mus.Doc.(Boston); Associate Professor; Principal Conductor

10.3.16 Organ Area
Gilbert, Kenneth; D.Mus. honoris causa(McG.), O.C., F.R.S.C., HonRAM; Adjunct Professor
Grew, John; L.T.C.L.(Lond.), B.Mus.(Mt. All.), M.Mus.(Mich.), D.D.(United Theological Coll.), LL.D.(Mt. All.); University Organist; Professor; Organ Area Chair
Porter, William; Associate Professor
### Percussion Area

Huang, Aiyun; B.A.(Tor.), D.M.A.(Calif.-San Diego); Assistant Professor; Percussion Area Chair

Marandola, Fabrice; Premier Prix(Conservatoire de Paris); M.Mus., Ph.D.(Sorbonne); Visiting Professor

### Piano Area

Davidson, Thomas; B.Mus.(Qu.), M.Mus.(McG.), Cert. of Advanced Study(R.C.M., Lond.), A.R.C.M., L.T.C.L; Assistant Professor

Gavrilova, Julia; M.Mus., D.Mus.(McG.); Instructor

Hashimoto, Kyoko; B.A.(Tokyo), Professional Studies (Juilliard); Associate Professor

Laimon, Sara; B.Mus.(Br. Col.), M.Mus.(Yale), D.M.A.(SUNY, Stony Brook); Associate Professor; Piano Area Chair

McMahon, Michael; B.Mus.(McG.), Graduate, Hochschule für Musik(Vienna); Associate Professor

Mdivani, Marina; Post-graduate Dip.(Moscow Cons.); Associate Professor

Zuk, Luba; L.Mus.(McG.), Graduate, Conservatoire de musique de Québec; Associate Professor

### String Area

#### Violin

Crow, Jonathan; B.Mus.(McG.); Associate Professor

Fewer, Mark; B.Mus.(Tor.); Assistant Professor; String Area Chair

Lupien, Denise; B.M., M.M.(Juilliard); Concertmaster, Orchestre Métropolitain; Assistant Professor

Roberts, Richard; B.Mus.(Ind.); Concertmaster, Montreal Symphony Orchestra; Assistant Professor

Wan, Andrew; Instructor

Williams, Thomas; B.Mus.(Bran.); Associate Professor

#### Viola

Chen, Jun-Yuan (Lambert); B.Mus.(Johns Hop.), M.Mus.(New England Cons.), D.Mus.(McG.); Instructor

Marcotte, Anna-Belle; L.Mus.(McG.); Instructor

McNabney, Douglas; B.Mus.(Tor.), M.M.(W. Ont.), D.Mus.(Montr.); Associate Professor

Roy, André; B.Mus.(Curtis); Associate Professor

#### Cello

Dolin, Elizabeth; B.Mus.(Tor.), Artist Dip.(Ind.); Assistant Professor

Dyachkov, Yegor; Instructor

Haimovitz, Matt; B.A.(Harv.); Associate Professor

Manker, Brian; Principal Cello, Montreal Symphony Orchestra; Instructor

#### Double Bass

Chappell, Eric; B.Mus.(McG.); Montreal Symphony Orchestra; Instructor

Pépin, Pierre; Instructor

Quarrington, Joel; Instructor

Robinson, Brian; B.Mus.(Tor.); Montreal Symphony Orchestra; Assistant Professor

Yazdanfar, Ali; Montreal Symphony Orchestra; Instructor
### Guitar
Antonio, Garry; B.Mus., M.Mus.(McG.), D.Mus.(Montr.), D.I.A.(C'dia); Instructor
Ducharme, Jérôme; Prix Grande Distinction (Conservatoire de Montréal); Instructor

### Harp
Swartz, Jennifer; Dip.(Curtis); Principal Harp, Montreal Symphony Orchestra; Assistant Professor

10.3.20 **Voice Area**
Algieri, Stefano; Associate Professor
Kinslow, Valerie; B.A.(McG.); Assistant Professor; Early Music, Voice Area Chair
Kolomyjec, Joanne; B.Mus.(Tor.); Assistant Professor
Kutan, Aline; Instructor
Popescu, Annamaria; A.Dip. (Acad. of Vocal Arts); Instructor
Purdy, Winston; B.Mus.(McG.), M.M.(Eastman); Associate Professor
Sevadjian, Thérèse; B.Mus., M.Mus.(Montr.); Associate Professor
Sylvan, Sanford; B.Mus.(Manhattan); Assistant Professor

10.3.21 **Vocal Repetiteurs**
Diamond, Louise; M.Mus.(McG.); Vocal Repetiteur
Godin, Olivier; Vocal Repetiteur
McLean, Pierre; Vocal Repetiteur
Nigrim, Dana; Vocal Repetiteur
Pelletier, Louise; B.Ed., M.Mus.(UQAM), M.Mus.(Montr.); Vocal Repetiteur

10.3.22 **Woodwind Area**

### Flute
Bluteau, Denis; M.Mus.(Montr.); Associate Principal, Montreal Symphony Orchestra; Instructor
Christie, Carolyn; B.Mus.(McG.); Montreal Symphony Orchestra; Associate Professor
Howes, Heather; B.Mus., M.Mus.(McG.); Instructor
Hutchins, Timothy; Dip. L.G.S.M.(Guildhall), B.A. Hons.Mus.(Dal.); Principal Flute, Montreal Symphony Orchestra; Associate Professor
Kestenberg, Abe; Associate Professor; Woodwind Area Chair
Shuter, Cindy; B.Mus.(Tor.); Instructor

### Oboe
Baskin, Theodore; B.Mus.(Curtis), M.Mus.(Auck.); Principal Oboe, Montreal Symphony Orchestra; Associate Professor
Forget, Normand; Instructor

### Clarinet
Aldrich, Simon; B.Mus., L.Mus.(McG.); Instructor
Crowley, Robert; B.M.(Eastman), M.M.(Cleve. Inst. of Music); Principal Clarinet, Montreal Symphony Orchestra; Assistant Professor
Desgagné, Alain; Instructor
Revisions – Schulich School of Music

Department of Music Research: Composition; Music Education; Music History; Theory; Faculty Program

- Minor Music Education (18 credits)  
- Minor Music History (18 credits)  
- Minor Music Theory (18 credits)  
- Minor Musical Science and Technology (18 credits)

About the Schulich School of Music (Undergraduate)

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Location

Strathcona Music Building
555 Sherbrooke Street West
Montreal, Quebec H3A 1E3
Canada

Telephone: 514-398-4535
Fax: 514-398-8061
Website: www.mcgill.ca/music
### 10.5.2 Faculty Administrative Officers

#### 10.5.2.1 Dean's Office

**Revision, August 2011. Start of revision.**

Sean Ferguson; B.Mus.(Alta.), M.Mus., D.Mus.(McG.)  
Dean

**Revision, August 2011. End of revision.**

Mary-Beth Campbell; B.Mus., M.Mus.(McG.)  
Communications and Special Events Administrator

Joanne Niles; B.A., M.A.(C'dia)  
Senior Assistant to the Dean/HR Adviser

Valerie McConnell  
Personnel and Administrative Coordinator

Linda Mannix; B.A.(C'dia)  
Secretary

Donna Williams; B.A.(W. Ont.)  
Development Director

Natacha Gauthier; M.Mus.(Montr.)  
Development and Alumni Relations Associate

Catherine Healy  
Secretary

Irene Baczyensky  
Administrative Coordinator

#### 10.5.2.2 Associate Deans' Office

TBA  
Associate Dean (Academic and Student Affairs)

Bruce Minorgan; B.Mus.(Br. Col.), M.A.(Tor.)  
Associate Dean (Administration)

Quynh-Ly Pham; B.Sc.(McG.)  
Budget Officer

Ishana Gopaul; B.Com.(McG.) (on leave)  
Faculty Research Account Administrator

Rena Raghunanan  
Faculty Research Account Administrator (Acting)

Diana Toni Dutz; B.Mus.(W. Ont.), Grad.Dip.(C'dia)  
Administrative Coordinator to the Associate Deans

Devy Nicholson; B.Mus.(Ott.), M.Mus.(McG.)  
Technical Manager, Concerts/Recordings

Charles Wan; B.Comp.Sc.(C'dia) *(on developmental assignment until June 2011)*  
Accounting Clerk

Elise Quinn; B.A.(McG.)  
Accounting Clerk (Acting)

Alain Terriault  
LAN Manager

#### 10.5.2.3 Graduate Studies

Eleanor Stubley; B.Mus.(Tor.), M.Mus.(Bran.), Ph.D.(Ill.)  
Director, Graduate Studies

Hélène Drouin  
Senior Administrative and Student Affairs Coordinator

Véronic Morin; B.A.(McG.) *(on temporary assignment until June 30, 2011)*  
Student Affairs Coordinator

Damia Tahirbegi; B.Mus.(McG.)  
Student Affairs Coordinator (Acting)

#### 10.5.2.4 Academic Affairs

Jean Lesage; Diplôme d’études supérieures (Conservatoire de Montréal)  
Chair, Department of Performance

Lloyd Whitesell; B.A.(Minn.), M.A., Ph.D. Mus.Hist.(SUNY, Stony Brook)  
Chair, Department of Music Research

Tracy Roach; B.Mus.(McG.)  
Administrative Assistant

Ania Loboda; B.Com.(C'dia) *(on leave)*  
Student Affairs Coordinator, Performance and Music Research

Laura Curiale; B.A.(Bishop's)  
Student Affairs Coordinator, Performance and Music Research (Acting)
### Timetable and Scheduling Coordinator
Jennifer Stephenson; B.A.(McG.)
Alexis Carter; B.Mus., M.Mus.(McG.)
TBA
Kerry Wagner; C.T.T.
Christopher Smythe; B.Mus., M.Mus.(McG.)

### ERM/Gig Office Administrator
TBA

### Secretary (Sessional)
Piano Maintenance Supervisor, Department of Performance
Christopher Smythe; B.Mus., M.Mus.(McG.)

### Sessional Secretary (Sessional)
TBA

### Piano Maintenance Supervisor, Department of Performance
Kerry Wagner; C.T.T.

### Shop Coordinator
Christopher Smythe; B.Mus., M.Mus.(McG.)

### Student Affairs

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>Jennifer Stephenson; B.A.(McG.)</td>
<td>Timetable and Scheduling Coordinator</td>
</tr>
<tr>
<td>Alexis Carter; B.Mus., M.Mus.(McG.)</td>
<td>ERM/Gig Office Administrator</td>
</tr>
<tr>
<td>TBA</td>
<td>Secretary (Sessional)</td>
</tr>
<tr>
<td>Kerry Wagner; C.T.T.</td>
<td>Piano Maintenance Supervisor, Department of Performance</td>
</tr>
<tr>
<td>Christopher Smythe; B.Mus., M.Mus.(McG.)</td>
<td>Shop Coordinator</td>
</tr>
</tbody>
</table>

### Admissions Officer
Patrick O’Neill; B.A.(McG.)
Mary Di Stefano
Pia D’Amico
TBA

### Admissions and Registration Clerk, Graduate
Reisa Lipszyc; B.Mus.(McG.) (on leave)
Michelle Hugill; B.Mus.(McG.)
Janet Edwards; B.A.(C’dia)

### Admissions and Registration Clerk, Undergraduate
TBA

### Admissions Secretary
Mary Di Stefano
Pia D’Amico
Janet Edwards; B.A.(C’dia)

### Recruitment Officer (Acting)
TBA

### Recruitment Officer
Reisa Lipszyc; B.Mus.(McG.) (on leave)
Michelle Hugill; B.Mus.(McG.)
Janet Edwards; B.A.(C’dia)

### Marketing and Web Content Administrator
TBA

### Senior Academic Adviser
TBA

### Senior Administrative and Student Affairs Coordinator
TBA

### Student Affairs Secretary
TBA

### Building Management

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>Peter Wightman; L.Mus., B.Mus., M.Mus.(McG.)</td>
<td>Building Director</td>
</tr>
<tr>
<td>Katherine Simons; B.Mus.(W. Laur.)</td>
<td>Associate Building Director</td>
</tr>
<tr>
<td>Elise Quinn; B.A.(McG.) (on developmental assignment until June 30, 2011)</td>
<td>Assistant Building Director</td>
</tr>
<tr>
<td>Steven Salcedo; B.Mus.(McG.)</td>
<td>Assistant Building Director (Acting)</td>
</tr>
<tr>
<td>Nick Zervos</td>
<td>Electronics Technologist (A/V)</td>
</tr>
</tbody>
</table>

### Concerts and Publicity

<table>
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<tr>
<th>Name</th>
<th>Position</th>
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<tbody>
<tr>
<td>Louise Ostiguy; B.Mus.(Montr.), C.G.E.(HEC)</td>
<td>Director</td>
</tr>
<tr>
<td>Kate Herzberg; B.Mus., Dip.Ed.(McG.), Dip.TEFL(Rutg.)</td>
<td>Marketing and Publicity Supervisor</td>
</tr>
<tr>
<td>Marie Pothier; B.Mus.(Montr.)</td>
<td>Publicity Secretary</td>
</tr>
<tr>
<td>Johanne Froncioni</td>
<td>Production Supervisor</td>
</tr>
<tr>
<td>Maureen Leaman</td>
<td>Secretary</td>
</tr>
<tr>
<td>Fernando Longueira</td>
<td>Timetable and Scheduling Secretary</td>
</tr>
<tr>
<td>Serge Filiatrault</td>
<td>Stage Manager (Pollack Hall)</td>
</tr>
<tr>
<td>Jordan Gasparik; B.Mus.(McG.)</td>
<td>Assistant Stage Manager (Pollack Hall)</td>
</tr>
<tr>
<td>Daphné Bisson; B.Mus.(McG.)</td>
<td>Assistant Stage Manager (Pollack Hall)</td>
</tr>
<tr>
<td>Robert A. Doucet; B.A.(C’dia)</td>
<td>Stage Manager ( Pollack Hall)</td>
</tr>
<tr>
<td>Michel Maher</td>
<td>Stage Manager (Tanna Schulich Hall)</td>
</tr>
</tbody>
</table>

### Box Office (weekdays: 12:00 to 18:00): 514-398-4547
Concert Information: 514-398-4547 or 514-398-5145
Bookings: 514-398-8993
Assistant Stage Manager (Tanna Schulich Hall)

Jacqueline Gauthier

François Robitaille

10.5.2.8 Marvin Duchow Music Library

Telephone: 514-398-4695

Head Librarian

Cynthia Leive; B.Mus.(Eastman), M.L.S.(SUNY, Geneseo), M.F.A.(Car.)

Music Liaison Librarian

Brian McMillan; B.Mus., M.Mus.(McG.), M.L.S.(Tor.)

Music Liaison Librarian

Cathy Martin; B.Mus.(UQAM), M.L.S.(McG.)

Music Liaison Librarian

Carolyn Doi; M.L.I.S.(McG.)

Senior Library Clerk – Circulation

Melanie Preuss

Specialized (Audio/Visual) Cataloguing Editor

Andrew Senior; B.A., M.Phil.(York, UK)

Senior Library Clerk – Serials

Gail Youster

Senior Library Clerk (Scores)

Patrick Dupuis; B.Mus.(Montr.)

Senior Library Clerk

Gabrielle Kern; B.Mus (McG.)

Senior Reference Assistant & Cat. Editor

David Curtis; B.Sc.(McG.)

10.5.2.9 Gertrude Whitley Performance Library

Telephone: 514-398-4553

Senior Specialized Cataloguing Editor and Acquisitions Assistant

Erika Kirsch; B.Mus.(Southern Methodist Univ.), M.Mus.(Eastman)

Principal Conductor

Julian Wachner; B.Mus., Mus.Doc.(Boston)

Executive Director

Patrick Hansen; B.Mus.(Simpson), M.Mus.(Missouri)

10.5.2.10 Opera McGill

Telephone: 514-398-4535, ext. 0489

Director

Sean Ferguson; B.Mus.(Alta.), M.Mus., D.Mus.(McG.)

Chief Electronics Technician

Richard McKenzie

10.5.2.11 Digital Composition Studio

Telephone: 514-398-4552

Director

Jennifer Feldman; B.Mus.(Galatea), M.Mus.(McG.)

Electronics Technician

Ieronim Catanescu

10.5.2.12 Recording Studio

Telephone: 514-398-4549

Director

Wieslaw Woszczyk; M.A., Ph.D.(F. Chopin Academy of Music, Warsaw)

Operetta McGill

Telephone: 514-398-4540

Director

Julian Wachner; B.Mus., Mus.Doc.(Boston)

Chief Electronics Technician

Patrick Hansen; B.Mus.(Simpson), M.Mus.(Missouri)
### 10.5.2.13 Music Technology Research Laboratories

Fax: 514-398-2962

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Darryl Cameron</td>
<td>Chief Electronics Technician</td>
</tr>
</tbody>
</table>

### 10.5.2.14 Computational Acoustic Modeling Laboratory (CAML)

Telephone: 514-398-4535, ext. 094836

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
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<tbody>
<tr>
<td>Gary P. Scavone</td>
<td>Director</td>
</tr>
<tr>
<td>B.A., B.S.(Syrac.), M.S., Ph.D.(Stan.)</td>
<td></td>
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</tbody>
</table>

### 10.5.2.15 Distributed Digital Music Archives and Libraries Laboratory (DDMAL)

Telephone: 514-398-4535, ext. 0300

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Ichiro Fujinaga</td>
<td>Director</td>
</tr>
<tr>
<td>B.Mus., B.Sc.(Alta.), M.A., Ph.D.(McG.)</td>
<td></td>
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</tbody>
</table>

### 10.5.2.16 Sound Processing and Control Laboratory (SPCL)

Telephone: 514-398-4535, ext. 00271

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Philippe Depalle</td>
<td>Co-Director</td>
</tr>
<tr>
<td>B.Sc.(Paris XI &amp; ENS Cachan), D.E.A.(Le Mans &amp; ENS Cachan), Ph.D.(Le Mans &amp; IRCAM)</td>
<td></td>
</tr>
<tr>
<td>Marcelo M. Wanderley</td>
<td>Co-Director</td>
</tr>
<tr>
<td>B.Eng.(UFPR), M.Eng.(UFSC), Ph.D.(Paris VI &amp; IRCAM)</td>
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### 10.5.2.17 Input Devices and Music Interaction Laboratory (IDMIL)

Telephone: 514-398-4535, ext. 094916

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
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<tbody>
<tr>
<td>Marcelo M. Wanderley</td>
<td>Director</td>
</tr>
<tr>
<td>B.Eng.(UFPR), M.Eng.(UFSC), Ph.D.(Paris VI &amp; IRCAM)</td>
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### 10.5.2.18 Music Perception and Cognition Laboratory (MPCL)

Telephone: 514-398-4535, ext. 094812

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
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<tbody>
<tr>
<td>Stephen McAdams</td>
<td>Director</td>
</tr>
<tr>
<td>B.Sc.(McG.), Ph.D.(Stan.), D.Sc.(Paris)</td>
<td></td>
</tr>
<tr>
<td>Bennett Smith</td>
<td>Technical Manager</td>
</tr>
</tbody>
</table>

### 10.5.2.19 Real-Time Multimodal Laboratory (RTML)

Telephone: 514-398-4535, ext. 094837

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
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<tbody>
<tr>
<td>Stephen McAdams</td>
<td>Director</td>
</tr>
<tr>
<td>B.Sc.(McG.), Ph.D.(Stan.), D.Sc.(Paris)</td>
<td></td>
</tr>
<tr>
<td>Bennett Smith</td>
<td>Technical Manager</td>
</tr>
</tbody>
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McGill University, Undergraduate Programs, Courses and University Regulations, 2011-2012 (Published August 17, 2011)
10.5.2.20 Centre for Interdisciplinary Research in Music Media & Technology (CIRMMT)

Telephone: 514-398-8793
Fax: 514-398-7414

Director
Sean Ferguson; B.Mus.(Alta.), M.Mus., D.Mus.(McG.)
Technical Manager
Harold Kilianski; B.Mus.(McG.)
Administrator
Sara Gomez; B.A.(McG.)
Administrative Coordinator
Jacqueline Bednar; B.Mus.(U of Surrey, Guilford, UK)
Secretary
TBA
Electronics Coordinator
Yves Méthot; B.Ing.(E.T.S.)
Systems Manager
Julien Boissinot
Associate Director, Artistic Research
Fabrice Maraldola; Ph.D.(Sorbonne)
Associate Director, Scientific and Technological Research
Gary P. Scavone; B.A., B.S.(Syr.), M.S., Ph.D.(Stan.)

10.5.2.21 Music Education Research Laboratory

Telephone: 514-398-4554

Director
Joel Wapnick; B.A.(NYU), M.A.(SUNY), M.F.A.(Sarah L.), Ed.D.(Syrac.)

10.5.2.22 McGill University Records

Telephone: 514-398-4537

Director
Joel Wapnick; B.A.(NYU), M.A.(SUNY), M.F.A.(Sarah L.), Ed.D.(Syrac.)

10.5.2.23 McGill Conservatory, Community Program of the Schulich School of Music of McGill University

Telephone: 514-398-4543 (Downtown campus)
Telephone: 514-398-7673 (Macdonald campus)

www.mcgill.ca/conservatory

Director
Clément Joubert; B.Mus.(McG.)
Administrative Assistant
Nancy Soulsby; B.A., Dip.Ed.(McG.)
Student Affairs Coordinator
Marie-Reine Pelletier
Admissions and Registration Clerk
Sharon Webb
Supervisor, Summer Conservatory Camp
Jennifer Pelletier
Senior Administrative Coordinator, Summer Camp
Lisa Perusse; B.Mus.(McG.)
Secretary
Nancy McMahon-Laporte
Communications and Marketing Administrator, Macdonald Campus
TBA
Mirko Sablich

10.6 Overview of Programs

The Schulich School of Music offers degree programs leading to the B.Mus. and diploma programs leading to an L.Mus. and Artist Diploma. The Department of Music Research offers minors in Music History, Composition and two minors in the area of Music Technology.
The Schulich School of Music of McGill University also offers the opportunity to pursue courses that reflect your multiple interests through collaboration with McGill's other faculties and departments. You may wish to consider partnering your music studies with subjects within other faculties that would lead to graduating with a double major or minor.

10.6.1 Degrees and Diplomas Offered

10.6.1.1 Degree of Bachelor of Music (B.Mus.)

The degree of Bachelor of Music may be obtained in any one of the following fields:

<table>
<thead>
<tr>
<th>Majors</th>
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<tbody>
<tr>
<td>Composition</td>
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<tr>
<td>Faculty Program</td>
</tr>
<tr>
<td>Music Education – available only as a component of the Concurrent B.Mus./B.Ed. program</td>
</tr>
<tr>
<td>Music History</td>
</tr>
<tr>
<td>Music Theory</td>
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<tr>
<td>Performance</td>
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<tr>
<td>Early Music Performance</td>
</tr>
<tr>
<td>Jazz Performance</td>
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</tbody>
</table>

10.6.1.2 Faculty Program

This program is designed to accommodate those students who are either undecided about the area of music in which they wish to specialize, or who are interested in a pattern of specialization not provided in the established major programs, or who are interested in combining studies in music with studies in other disciplines.

All of the above B.Mus. programs normally require three years of study following completion of the Quebec Diploma of Collegial Studies or four years of study following completion of secondary school elsewhere.

10.6.1.3 B.A. Major Concentration in Music

The Faculty of Arts offers a Bachelor of Arts degree with a Major concentration in Music. Further details on the program can be found under Music in the Faculty of Arts section.

10.6.1.4 Minor Programs

A Minor in Music History is available to all students (with the exception of students in the Major in Music History). This option will take the place of music and/or free electives, as well as history, literature, and performance practice complementary courses.

A Minor in Composition is available to all students (with the exception of students in the Major in Composition). This option will take the place of Music course and/or free electives.

Minors in Musical Applications of Technology and Musical Science and Technology are available to Music students who wish to graduate with a knowledge of newer technologies and the impact they are having on the field of music. (Space permitting, these minors are also available to students from other faculties.)

A Minor in Marketing and a Minor in Management are available to B.Mus. students. Further information on these minors can be found under the Desautels Faculty of Management > section 9.9.7: Minors for Non-Management Students.

Minor programs in Music are also available to students in the Faculty of Arts and the Faculty of Science. Further information on these Minors can be found under the Faculty of Arts, section 3.11.38: Music (MUAR) and the Faculty of Science > section 12.14.23: Music.

10.6.1.5 M.Mus. Performance (Prerequisite courses)

Students wishing to prepare for the Master of Music in Performance should include, in their Bachelor of Music program, the courses listed under section 10.9.2.14: Special Prerequisite Courses for M.Mus. in Performance.

10.6.1.6 M.Mus. Sound Recording (Prerequisite courses)

Students wishing to prepare for the Master of Music in Sound Recording should include, in their Bachelor of Music program, the courses listed under section 10.9.1.5: Special Prerequisite Courses for M.Mus. in Sound Recording.

10.6.1.7 Licentiate in Music (L.Mus.)

The Licentiate in Music is offered in Performance and is designed for advanced instrumentalists, singers, and jazz performers who wish to concentrate on their practical subject while limiting their theoretical studies to basic areas in Music History, Theory, and Musicianship. This program normally requires
three years of study. For more information, please see: section 10.9.2.8: Licentiate in Music (L.Mus.) - Major Performance Piano (93 credits); section 10.9.2.9: Licentiate in Music (L.Mus.) - Major Performance (All Instruments except Piano, Voice and Jazz) (93 credits); section 10.9.2.10: Licentiate in Music (L.Mus.) - Major Performance Voice (105 credits); and section 10.9.2.11: Licentiate in Music (L.Mus.) - Major Performance Jazz (100 credits).

10.6.1.8 Artist Diploma

The Artist Diploma is available only to advanced instrumentalists and singers who demonstrate technical and musical maturity. Admission into the program requires completion of a Bachelor of Music degree in Performance, a Licentiate in Music, or the equivalent.

10.6.1.9 Degree of Master of Arts (M.A.)

The Master of Arts degree (M.A.) is available as a thesis option in Music Education, Music Technology, Musicology, and Theory and as a non-thesis option in Music Education, Musicology, and Theory.

10.6.1.10 Degree of Master of Music (M.Mus.)

The Master of Music degree (M.Mus.) is available in Composition, Performance, and Sound Recording. Within the Performance option are offered specializations in: piano, guitar, orchestral instruments, organ, conducting, chamber music, orchestral training, piano accompaniment, vocal, opera, opera coaching, vocal pedagogy, early music, church music – organ, and jazz.

10.6.1.11 Degree of Doctor of Music (D.Mus.)

The Doctor of Music degree (D.Mus.) is available in Composition and Performance Studies.

10.6.1.12 Degree of Doctor of Philosophy (Ph.D.)

The Doctor of Philosophy degree (Ph.D.) is available in Music Education, Musicology, Music Technology, Sound Recording, and Theory.

For details of the master’s and doctoral programs, please consult the Graduate and Postdoctoral Studies Programs, Courses and University Regulations publication, available at www.mcgill.ca/study.

10.6.2 Orchestral Training

Orchestral Training at McGill includes all students in the B.Mus., L.Mus., Artist Diploma, M.Mus., and D.Mus. degrees and diplomas whose major is one of the orchestral instruments. Many of its graduates are now members of professional orchestras throughout North America, Europe, and the rest of the world. Led by full-time conductors in residence and supported by a number of full-time staff as well as many members of the top professional orchestras in and around Montreal, Orchestral Training at McGill provides for regular private practical lessons as well as performance in one or more large instrumental ensembles including a full symphonic orchestra (approximately 100 players), a contemporary music ensemble, a percussion ensemble, and a variety of small chamber music groups. It also includes regular coached orchestral sectionals and orchestral repertoire classes.

10.6.3 Scholarships and Financial Aid

General information on scholarships, including McGill Entrance Scholarships, and a detailed listing of all awards are contained in the Undergraduate Scholarships and Awards Calendar, available at www.mcgill.ca/students/courses/calendars.

Schulich Scholarships valued at CAD$5,000/year (renewable) are available to outstanding prospective students. About 70 Schulich Scholars are present in the School during any academic year. A limited number of Music Entrance Scholarships (valued at $2,000 each) are also awarded to incoming Performance students on the basis of auditions held only in February. All instruments, including voice, are eligible. In addition, outstanding string players applying to the Schulich School of Music are encouraged to audition for the Lloyd Carr-Harris String Scholarships (valued at $10,000 each, renewable). Application for admission must be submitted by January 15.

While taking into account the stipulations of the individual awards, Schulich School of Music scholarships, awards, and prizes are given on the basis of a student's record for the academic session ending in April and are tenable during the next academic year beginning in September. Students must have successfully completed at least 27 credits (excluding courses completed under the Satisfactory/Uncolts satisfied option) in the academic year preceding the award and must register for full-time studies during the subsequent year, unless fewer credits are needed to complete the program. Students whose records contain outstanding incompletes or deferrals will not be considered. No application is required.

10.6.4 Summer Studies

Summer Studies offers courses starting in May, June, and July.

Students may take a maximum of 18 credits during the Summer session. Those wishing to take more than 5 credits in any one month must obtain the permission of the Senior Student Adviser.

Information concerning course offerings and application forms may be obtained from the McGill Summer Studies Office website, www.mcgill.ca/summer, or by calling 514-398-5212.

10.6.5 Music Credit Options for Students in Other Faculties

The Schulich School of Music offers three groups of courses that may be taken for credit by students in other faculties.
The first group consists of Music Literature and Theory courses especially designed for students from other faculties who may not have taken formal studies in music but who wish to take elective courses in the cultural, historical, and theoretical aspects of music.

The second group is the sequence of courses in music theory and history which are part of the Schulich School of Music undergraduate curriculum. These courses may be taken by those having the necessary prerequisite studies in music.

The third group of courses consists of selected music ensembles open, by audition, to students in other faculties.

For further details on these courses, please see the Faculty of Arts > section 3.11.38: Music (MUAR). Other music courses may be taken by qualified students from other faculties providing they obtain permission from the relevant department in the Schulich School of Music and from the Associate Dean of their own faculty.

10.6.6 McGill Conservatory

The McGill Conservatory, Community Program of the Schulich School of Music, offers instruction in piano, guitar, harp, most orchestral instruments, and voice, as well as Theory and Ear Training from the elementary level up to and including Collegial levels.

In addition, the McGill Conservatory offers the Little Musicians course – an introduction to music for young children, Suzuki method instrumental instruction, orchestras, children's, youth and adult choirs, chamber music ensembles, a variety of jazz courses: improvisation, theory, history, and combos, a garage band program, and a summer day camp.

Instrumental examinations to the Collegial II level and Theory and Ear Training examinations from the Secondary III to Secondary V levels are available to both internal and external students. Theory and Ear Training examinations at the Elementary and Collegial I and II levels are open to internal students only.

The McGill Conservatory also welcomes adult students (at any level) and encourages their participation not only in instrumental instruction but also in choir, orchestra, instrumental ensembles, and Theory and Ear Training courses.

For more information, contact the McGill Conservatory: 514-398-4543 (Downtown); 514-398-7673 (Macdonald campus); 514-398-5505 (Camp); website: www.mcgill.ca/conservatory.

10.7 Admission

As you plan for the next step in your education, we would be pleased to assist you in providing further information and/or assistance. Please take a few minutes to create an account on McGill in Mind. Here you can register for tours of the Schulich School of Music, learn about events, request publications, modify your personal profile, and receive messages from us concerning exciting developments at the School. Please note that certain materials in our packages are only available in English. (All information is confidential and will be used solely for McGill University recruiting purposes.)

10.7.1 Application Procedure

All inquiries regarding admission should be directed to the Music Admissions Office, Schulich School of Music, McGill University, 555 Sherbrooke Street West, Montreal, Quebec, H3A 1E3.

Full information, including a web-based application form, is available at www.mcgill.ca/music/prospective/undergraduate/applying.

In order to ensure proper consideration, web applications for September must be submitted by January 15. The School normally does not admit students in January. Please consult the Music Admissions Office for exceptions. Applications received after these deadlines will be considered if places are still available.

Application information should include detailed descriptions of the applicant's musical background, training, and statement of intent including photocopies of diplomas, certificates, and/or transcripts. An official up-to-date transcript must also be sent directly by the school attended. All applicants must arrange to have a Music Evaluation form submitted on their behalf. All supporting documents for undergraduate applications must be mailed to: McGill University, Enrolment Services Documentation Centre, 688 Sherbrooke Street West, Suite 760, Montreal, Quebec, H3A 3R1. All screening and audition recordings and composition samples should be submitted directly to the Schulich School of Music: 555 Sherbrooke Street West, Montreal, Quebec, H3A 1E3.

Applicants are advised that satisfying the entrance requirements does not guarantee admission where instrumental places are limited.

10.7.2 Music Entrance Requirements

The minimum music entrance requirements are the equivalent of McGill Conservatory Collegial I Instrument or Voice (Performance applicants: Collegial II) and Secondary V Theory and Ear Training.

### Approximate Equivalents to Entrance Requirements in Practical Subjects (McGill Conservatory Collegial I – Instrument/Voice)

<table>
<thead>
<tr>
<th>Subject</th>
<th>McGill Conservatory Collegial I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quebec CEGEPs</td>
<td>Grade 9</td>
</tr>
<tr>
<td>Toronto Conservatory</td>
<td>Grade 9</td>
</tr>
<tr>
<td>Western Board</td>
<td>Grade 9</td>
</tr>
<tr>
<td>Mount Allison</td>
<td>Grade 9</td>
</tr>
<tr>
<td>Associated Board of the Royal Schools of Music</td>
<td>Grade 7</td>
</tr>
</tbody>
</table>
The above listing is intended only as a general guide. Admissibility to any program is determined by audition and academic record. Students wishing to major in Performance should be approximately two years more advanced, and be able to demonstrate potential as performers at their audition.

All applicants in female voice and in all jazz instruments will be required to submit screening material (CD, video, etc.) for preselection by January 15. Following a review of these recordings, selected applicants will be invited to attend a live audition. No live audition will be scheduled in female voice or in any jazz instrument until recordings have been received and reviewed. All applicants must perform an audition of approximately 15 minutes' duration. The student should choose material that will represent different musical periods and reveal musicianship and technical proficiency to best advantage. Applicants for the Artist Diploma program must prepare an audition of recital material lasting approximately 60 minutes.

Consult the Music Admissions website at www.mcgill.ca/music/future-students/undergraduate for specific information on entrance audition requirements and dates.

Recorded auditions (compact disc and/or video) are acceptable when distance prevents an applicant from attending an audition in person.

Applicants for Composition are asked to submit two or three samples of their written work.

Music Education applicants are asked to outline reasons for wishing to enter the Music Education field in their statement of intent and have a letter of reference sent from someone attesting to his or her suitability for teaching.

All screening and audition recordings and composition samples should be submitted directly to the Schulich School of Music of McGill University: 555 Sherbrooke Street West, Montreal, Quebec, H3A 1E3.

10.7.3 Academic Entrance Requirements

10.7.3.1 Bachelor of Music

The applicant's entrance audition and the academic record are considered when making an admission decision. As a limit is placed upon the number of students admitted to study a particular instrument, fulfillment of the minimum entrance requirements does not guarantee acceptance. TOEFL may be required of non-Canadian students whose mother tongue is not English. It is the applicant's responsibility to make the necessary arrangements with the examining board to write the test in the country of residence.

10.7.3.2 CEGEP Applicants

Students are expected to obtain the Quebec Diploma of Collegial Studies (Diplôme d'études collégiales) in the Music Concentration or equivalent. Applicants with a DCS/DEC in a field other than Music must have the equivalent Music prerequisites. The minimum overall average required is 75%. CEGEP graduates are considered for admission to a three-year or a four-year program.

10.7.3.3 Canadian High School (excluding Quebec) Applicants

Applicants are expected to obtain a high school graduation diploma which leads to university admission in the student's home province. Ontario high school students are normally expected to have obtained a minimum of six pre-university (4U, 4M) courses; at least four of the six must have been taken at the 4U level. There are no specific non-Music prerequisite courses required, and the minimum overall average should be 75%. Canadian high school graduates are admitted to a four-year program.

10.7.3.4 U.S. High School Applicants

Applicants are expected to obtain a high school graduation diploma that meets the requirements for university/college admission in the U.S. The minimum overall average required is B+. There are no specific non-Music prerequisite courses, or SAT and Achievement Test results required. Some credit will be granted for Advanced Placement Examinations in appropriate subjects. U.S. high school graduates are admitted to a four-year program.

10.7.3.5 International Applicants

In general, applicants must be eligible for admission to university in their country of origin and have above-average grades. Students who have completed an International Baccalaureate, a French Baccalaureate, or a minimum of three GCE “A” (Advanced) Level examinations are considered for admission into a three-year program. Normally, applicants with five GCE “O” (Ordinary) Level results, plus one year of schooling beyond the Ordinary Level, are admitted to a four-year program. Applicants with qualifications from other systems will be considered for either a three-year or a four-year program.

10.7.3.6 Transfer Students

Transfer students are considered on the basis of both their university or college work and previous studies. Normally, students are expected to complete a full year of university studies prior to applying for admission, and to be in good standing as defined by the university previously attended. The minimum overall average required is a CGPA of 3.00. Transfer credits for non-Music courses in which a grade of C or better has been received are granted following an evaluation of the student's transcript. Transfer credits, with certain restrictions, are granted for music complementary or elective courses following an evaluation of the student's transcript (a higher grade may often be required). Transfer students must complete a minimum of 60 credits at McGill in order to obtain a degree.

10.7.3.7 Mature Students

Applicants who are at least 21 years of age and are Canadian citizens or Permanent Residents at or before registration, who have not met the high school or CEGEP academic requirements, and who are able to demonstrate exceptional talent in their discipline may be considered for admission. Such applicants may be resident anywhere in Canada. All available academic/educational documents must be submitted. An interview may be required.
10.7.3.8 Special Students

Special Students do not need to fulfil any of the academic requirements outlined previously, but are required to have the necessary music prerequisites for the courses concerned. Registration is subject to the availability of space in the course(s) concerned. Special Students are normally not entitled to lessons in an instrument or in voice. Registration is permitted for one year only, after which time the student must apply for admission to either a degree or diploma program.

10.7.3.9 Visiting Students

Individuals wishing to take courses at McGill for credit at another university may be admitted as Visiting Students provided they have the prerequisites for the course(s) concerned and have official permission from their home university.

10.7 Diploma Programs

10.7.4.1 L.Mus. (All Applicants)

For admission to the Licentiate program, the applicant must have completed secondary school. The applicant's music qualifications must be equivalent to McGill Conservatory Collegial II Instrument or Voice and Secondary V Theory/Ear Training. An entrance audition is required. This program is normally three years in length.

10.7.4.2 Artist Diploma (All Applicants)

For admission to the Artist Diploma program, the applicant must have a Bachelor of Music degree in Performance, the Licentiate in Music of the McGill Schulich School of Music, or the equivalent, and must pass a performance audition. This program is normally two years in length.

10.7.5 Music Placement Examinations

All applicants must sit diagnostic placement examinations in Theory, Musicianship (Ear Training), Music History, Keyboard Proficiency, and, for Jazz majors, Jazz Materials, in order to determine their course levels. General placement/advanced standing examinations will be given during the entire weekend prior to the beginning of classes in September. Jazz Materials and Jazz Keyboard Proficiency placement exams are given on the first day of class.

First-year students enrolled in the Bachelor of Music program who have completed the Quebec Diploma of Collegial Studies (Diplôme d'études collégiales) in a Music concentration or equivalent, or students transferring from other universities or colleges, and who have completed a course in the history of Western music, with a grade of C or better, will be exempted from the first-year Western Musical Traditions requirement (MUHL 186).

First-year students enrolled in the Bachelor of Music program with a Major in Jazz Performance who have completed the Quebec Diploma of Collegial Studies (Diplôme d'études collégiales) in a Jazz concentration or equivalent, or students transferring from other universities or colleges, and who have completed a course in the history of Jazz, with a grade of C or better, will be exempted from the first-year Jazz History Survey requirement (MUJZ 187).

Students accepted into either the Licentiate Diploma (L.Mus.) or the Artist Diploma, who have completed the degree of Bachelor of Music at a Canadian or American university (or the equivalent elsewhere) within the preceding three (3) years will not be required to sit the Music Placement Examinations and will be exempted from required Theory, Musicianship, and Music History, Literature, or Performance Practice courses. Should such students wish to avail themselves of the diagnostic service that the Music Placement Examinations provide, they may sit them—without, however, being bound by the recommendation generated from their results. Nevertheless, should great difficulties arise in a specific class because of lack of adequate preparation, the Chair of the Department of Music Research, upon the advice of the instructor, reserves the right to counsel the student to undertake studies at a lower level.

10.7.6 Keyboard Proficiency Test (MUSP 170)

Students entering any of the B.Mus. or L.Mus. programs should be prepared to demonstrate, in a Keyboard Proficiency Test, keyboard skills sufficient to enable them to use the piano as a tool in their studies at McGill.

Those who are unable to do so must register continuously for Keyboard Proficiency MUSP 170 until they successfully complete the course. Majors in Jazz Performance must enrol in MUJZ 170. Students who have been admitted to a degree or diploma program with keyboard as their principal instrument are exempt from the MUSP 170 Test (but not from MUSP 171).

The requirements of the Keyboard Proficiency Test are as follows:

1. Sight-reading (simple two-part piece using treble, bass, and alto clefs).
2. Technique (scales, triads, and arpeggios). Two octaves, hands together.
3. Prepared piece (contrapuntal texture in two or three parts, or simple homophonic textures, level equivalent to McGill Conservatory Secondary III).
4. Keyboard rudiments (recognition/playing of intervals, chords, scalar patterns, etc.).

Students will not be allowed to proceed with higher-level Musicianship or Theory studies until these requirements are met. Exact test dates are determined by the Department of Music Research.
10.7.7 Readmission

Students in Satisfactory Standing, who have not been registered in the Schulich School of Music for one or two terms, may return to the program in which they were previously registered upon permission of the Faculty. Those who have been out for longer than two terms may be readmitted upon permission of the Faculty, subject to the student's previous record and current Faculty limitations on enrolment, but will be required to re-audition. Students who have completed their required practical examinations and are returning to fulfill academic courses are not required to re-audition. Students who are uncertain of the re-audition regulations are urged to contact the Senior Student Adviser.

Students wishing to return in the Winter or Summer term must submit a request in writing to the Music Student Affairs Office, giving a summary of their activities during their absence. The deadline for the Winter session is November 15; for the Summer session, April 1; for the Fall session, January 15 for students who must re-audition, and June 1 (no audition).

10.7.8 Tuition Fees

General information on Tuition and Other Fees will be found in University Regulations and Resources > Fees. The University reserves the right to make changes without notice in the published scale of fees.

Individual practical instruction on a main instrument or voice as indicated in the various degree and diploma programs (see section 10.6.1: Degrees and Diplomas Offered) is included at the per-credit rate and the practical instruction fee of $500 per term only while the student is full-time, and for a maximum number of years according to the following table:

### Table 1: Entitlement

<table>
<thead>
<tr>
<th>Category of Student (based on academic entrance qualifications)</th>
<th>B.Mus. (Perf. or Jazz Perf.)</th>
<th>B.Mus. (non-perf. Concentration*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School graduates (Gr.12) [Canadian, except Quebec; United States; Overseas]</td>
<td>5 years</td>
<td>3 years</td>
</tr>
<tr>
<td>CEGEP graduates [Holders of DEC or DCS in Music or a non-Music specialization]</td>
<td>4 years</td>
<td>2 years</td>
</tr>
<tr>
<td>Transfer students [from other colleges, universities, or McGill faculties] or degree holders</td>
<td>4 years</td>
<td>2 years</td>
</tr>
<tr>
<td>Mature Students [without above academic qualifications but who are 21 years old as of Sept. 1]</td>
<td>4 years</td>
<td>2 years</td>
</tr>
</tbody>
</table>

* Composition, Music Education, Music History, Theory, Faculty program

L.Mus. students are entitled to practical instruction at the per-credit rate for a maximum of four years, 1 hour per week; Artist Diploma students, two years, 1.5 hours per week.

The maximum of four years of practical instruction for L.Mus. students includes instruction received while in a B.Mus. program either during or prior to registration in the L.Mus. program.

**Note:** Part-time students in the B.Mus. and L.Mus. programs and those who have exhausted the above-listed maxima will be charged $785 per term ($1,570 per year) for practical instruction in addition to the per-credit fees and the practical instruction fee of $500. (Artist Diploma students: $1,175 per term or $2,350 per year.)

Special or part-time Visiting students who are permitted to enrol for practical instruction will also be charged an extra $785 per term, in addition to the per-credit fees and the practical instruction fee of $500, as will all other students taking instruction in a second practical subject.

Voice Coaching (MUIN 300, MUIN 301) is available at the per-credit rate for a maximum of two terms for full-time voice students only. In all other cases, the extra fee for this course is $550 per term.

Special students in the Opera Studio will be charged an additional $680 per term ($1,360 per year). Degree or diploma candidates registered in Opera Studio, as well as Special students taking practical instruction at $785 per term, will be charged the per-credit fee for Opera Studio.

10.8 Academic Information

Students are required to be punctual at all classes and lessons. Grades in theoretical subjects are calculated on the basis of class work and/or examinations. Students are warned that by missing examinations or class work they risk failure in the subject concerned.
10.8.1 Ensemble Policy and Regulations

10.8.1.1 Preamble

The ensemble program comprises areas of activity designed to provide an enriched and cohesive curriculum in practical musicianship for every student. Much of this training is accomplished in the context of an instrumental, choral ensemble or specialized ensembles, over the period that students normally spend on studies.

Students are responsible for checking their program requirements carefully in order to verify their basic (large) and small ensemble requirements; the Performance Department does not follow the particular enrolment of any student's participation in their small or large ensembles.

For each program's basic (large) and small ensemble requirements, refer to the appropriate section in this publication (all Undergraduate, Licentiate, and Artist Diploma requirements are found in section 10.9.2: Department of Performance; graduate programs are in the Graduate and Postdoctoral Studies Programs, Courses and University Regulations publication also available at www.mcgill.ca/study).

In those cases where a student in the orchestral training program is registered for additional academic sessions, he/she must also register for a basic (large) ensemble for each additional session. (For exemptions, see section 10.8.1.11: Exemption from a Required Ensemble.)

A student in the Performance Department who is not assigned a basic ensemble following the ensemble placement auditions may take a choral ensemble (after having a placement audition with the conductor(s)) or see the Ensemble Resource Administrator to examine if any other options are available to the student.

Small Ensembles: Generally, all students registered as full-time or part-time students in the Department of Performance must audition for, and participate in, a small ensemble. For each program's small ensemble requirements, please refer to the appropriate section in this publication (all Undergraduate, Licentiate and Artist Diploma requirements are found in section 10.9.2: Department of Performance; graduate programs are in the Graduate and Postdoctoral Studies Programs, Courses and University Regulations publication also available at www.mcgill.ca/study).

Performance majors as well as sufficiently advanced players and singers from other programs are encouraged to participate in one or more small ensembles that meet their particular interest.

Note: In all cases where the term “Director” of an ensemble is used, it is understood to mean the conductor, director, stage director, or coach of the ensemble.

The following policy and its regulations apply to all students performing in all ensembles, large or small, required, complementary, or elective. They apply also to all students who have been assigned to an ensemble for any reason, including conducting students, composers- and arrangers-in-residence, and others.

10.8.1.2 Large Ensemble (Basic) and Small Ensembles (Assigned)

Basic ensemble training requirements vary by program and according to the student's practical concentration. For ensemble purposes, the orchestral instruments include flute, oboe, clarinet, bassoon, saxophone, french horn, trumpet, trombone, tuba, percussion, harp, violin, viola, cello, and double bass. Voice majors may choose from a group of vocal and choral ensembles appropriate to the level of their development.

In all programs which specify an assigned small ensemble, the following are considered assigned small ensembles:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Ensemble Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUEN 556</td>
<td>Introduction to Collaborative Piano 1</td>
</tr>
<tr>
<td>MUEN 557</td>
<td>Introduction to Collaborative Piano 2</td>
</tr>
<tr>
<td>MUEN 560</td>
<td>Chamber Music Ensemble</td>
</tr>
<tr>
<td>MUEN 570</td>
<td>Jazz Combo</td>
</tr>
<tr>
<td>MUEN 578</td>
<td>Song Interpretation 1</td>
</tr>
<tr>
<td>MUEN 579</td>
<td>Song Interpretation 2</td>
</tr>
<tr>
<td>MUEN 580</td>
<td>Early Music Ensemble</td>
</tr>
<tr>
<td>MUEN 581</td>
<td>Piano Ensemble Seminar 1</td>
</tr>
<tr>
<td>MUEN 582</td>
<td>Piano Ensemble Seminar 2</td>
</tr>
<tr>
<td>MUEN 584</td>
<td>Studio Accompanying</td>
</tr>
<tr>
<td>MUEN 585</td>
<td>Sonata Masterclass</td>
</tr>
<tr>
<td>MUEN 589</td>
<td>Woodwind Ensembles</td>
</tr>
<tr>
<td>MUEN 598</td>
<td>Percussion Ensembles</td>
</tr>
</tbody>
</table>

10.8.1.3 Additional Ensembles

Additional ensembles chosen by students to reflect their particular interests may, with Departmental approval, be applied as Music Elective credit. Students electing an ensemble will normally be required to participate in the ensemble placement auditions and will be placed accordingly.
10.8.1.4 Assignment and Auditions

All students registered as full-time or part-time students in the Department of Performance must audition for a basic (large) ensemble in the beginning of the school year. (If a mid-year audition is offered for a particular year or ensemble, notice will be given prior to the start of the academic year.) Auditions for basic (large) ensembles are mandatory.

A student who cannot audition for a basic ensemble at the times indicated on the website must give due notice to the Ensemble Resource Administrator in the Performance Department of their non-availability at least two (2) weeks before the date of the first audition. The student must submit, in writing, the reason for their lack of availability and (if applicable) submit a recording of their audition materials prior to the day of the auditions. If a student misses an audition with an accepted reason, but does not deliver the audition materials to the Department, or if a student misses an audition for reasons unacceptable to the Performance Department, that student will not be allowed to audition and his/her assignment will be left entirely to the discretion of the Performance Department.

Assignments are posted on the Large Ensemble notice boards (located in the main hallway of the Strathcona Music Building). Reassignments may be made from time to time during a term and will also be communicated to students.

In the case of the Jazz Ensembles, an open challenge system is used as follows:

1. At any time during a term, a student may challenge for a position in a Jazz Ensemble.
2. The challenger must speak to the band directors involved, specifying the chair being challenged.
3. The challenger will have a private audition with no fewer than two directors who will offer a non-binding recommendation to the student as to whether or not to proceed with the challenge.
4. Should the challenger wish to proceed, the student being challenged will be notified by the Coordinator of the Jazz Ensembles.
5. The challenge will take the form of an audition of both the regular member of the ensemble and the challenger in a full band rehearsal, following which the directors will make a decision.

10.8.1.5 Commitment

Ensembles are courses. Each student who has registered for an ensemble, or who has been assigned to an ensemble, has made a commitment to the ensemble and is required to attend all rehearsals, concerts, performances, field trips, recordings, and other activities, which constitute the course requirements of that ensemble. Except for reasons of ill health or in the case of an excused absence; any unexcused absence may result in a failing grade for the student.

10.8.1.6 Failing Grade

A failing grade in any of the ensembles (large, small, complementary, or elective ensembles) obliges the student to make up the credit during a later semester. A subsequent failure in the same course may result in the student being required to withdraw from the program.

10.8.1.7 Request to be Excused from a Rehearsal

ANY STUDENT WHO CANNOT ATTEND A REHEARSAL FOR ANY ENSEMBLE IS REQUIRED TO FILL OUT AN "ENSEMBLE EXCUSE FORM". THIS FORM IS AVAILABLE ON THE ENSEMBLE PAGE OF THE SCHULICH SCHOOL OF MUSIC (www.mcgill.ca/music/current-students/undergraduate/all-students/ensembles/policies-absences). For Opera McGill policies, please contact the Opera McGill Department directly (opera@music.mcgill.ca).

Students are required to submit a completed form at least eight (8) days prior to the rehearsal that will be missed, stating the reason for the request. Students who have missed a rehearsal due to illness must submit one of these forms within three (3) days of returning to school. In such cases, a doctor's certificate or statement from the Student Health Service or equivalent medical service must be submitted electronically via email or in hard copy to the Office of the Ensemble Resource Administrator.

Students may be excused from a rehearsal of an ensemble for the following reasons; however, submitting a form with one of these reasons does not guarantee approval of a request:

1. Sickness, or emergency medical or dental work.
   
   IMPORTANT NOTE: ANY STUDENT WHO IS EXPERIENCING PAIN WHILE PLAYING OR SINGING SHOULD INFORM THEIR PRACTICAL TEACHER AND THE DIRECTOR OF THEIR ENSEMBLE(S), AND SHOULD SEEK APPROPRIATE MEDICAL ATTENTION. Students should not be reluctant to admit to injury; it is entirely acceptable for students to be excused from ensemble rehearsal(s) for health reasons. The Faculty does not want students to perform with pain or with injury. * If a student is experiencing pain while playing, then it is permitted to sit in rehearsal in their assigned place without playing in the rehearsal.

2. An audition for a permanent professional engagement.

3. A master class.

4. A major competition.

5. A professional engagement deemed to be very important for a student's developing career.

6. Family emergency or an especially important family occasion.

7. A conflict between an irregularly scheduled ensemble rehearsal and a previous important commitment made by the student (proof required).

8. A field trip for another ensemble or class.
10. A religious holiday.

For reasons 2, 3, 4, and 5, the request must be accompanied by authorization from the student's practical teacher and the appropriate Area Chair. This permission is given for no more than three (3) rehearsals.

**Note:** NO PERMISSION IS GIVEN TO BE EXCUSED FROM A DRESS REHEARSAL OR FROM A CONCERT EXCEPT FOR REASONS 1 AND 2 ABOVE.

Students are not excused from ensemble rehearsals for either of the following reasons:

1. Gigs, including orchestra engagements
2. Non-emergency medical or dental appointments. Students should request appointment times that do not conflict with rehearsals.

Absences or delays (especially, but not limited to, tardiness) without an approved Ensemble Excuse Form will result in a final mark deduction as follows:

- Absences due to illness (with Medical Certificate, audition notification, or other accepted reasons) = no loss of grade
- Tardy to rehearsal, without approved Ensemble Excuse Form = loss of one grade point (i.e., B to B–)
- Absences without approval = loss of one entire letter grade (i.e., A to B)

### 10.8.1.8 Preparation

If the Director of an ensemble is not satisfied with the quality of preparation that a student has been making for the ensemble, the Director shall first warn the student. This warning shall be communicated by the Director to the Ensemble Resource Administrator and Area Chair, who shall inform the student in writing. If, in the Director's opinion, this lack of preparation continues, the student will be required to perform the music for a committee consisting of the Director of the ensemble, the Chair of the area (Strings, Woodwinds, Brass, Voice, etc.) and the Department Chair. If this committee decides that there has been a lack of sufficient preparation, the student will be required to appear before the Area Chair to show cause why he or she should not be required to withdraw.

For any particular performance, if – after a written warning to the student(s) at least two (2) weeks prior to the performance, with copies to the Ensemble Resource Administrator, practical instruction teacher, Area Chair, and Department Chair – the Director, in consultation with his/her coaches, feels that the performance of a student or group of students will not meet a certain minimum standard established by the Director, the Director may cancel the performance of the student(s).

### 10.8.1.9 Discipline

The Director of an ensemble may recommend that a student withdraw from an ensemble for disciplinary reasons. A student asked to do so will be required to appear before the Department Chair, Area Chair, and Director to show cause why he or she should not be required to withdraw.

Students who are required to withdraw from an ensemble for reasons of lack of preparation or discipline will be given a grade of F, which will be reflected in their Grade Point Average (GPA).

### 10.8.1.10 Withdrawal

Withdrawal for any reason obliges the student to make up the credit(s) during a later semester.

### 10.8.1.11 Exemption from a Required Ensemble

In order to be given permission not to participate in a required ensemble for a term or part thereof, a student must:

1. be a participant in a major national or international competition, or (in the case of voice students) be given a significant role with a recognized performing arts ensemble, and (in the case of all students) have completed the minimum number of required terms of the ensemble, and have the permission of:
   - his or her practical teacher
   - the area Chair
   - the Director of the ensemble
   - Chair of the String, Woodwinds, Brass, Opera, or Voice Area (where appropriate), or

2. have completed all program requirements except the final exam on his or her instrument, or

3. have completed all musical requirements of his or her program, having only non-music and/or free electives remaining, or

4. have a significant medical reason.

**Note:** Permission not to participate in a required or complementary ensemble for a term or part thereof is not an exemption and does not satisfy any credit requirements for a degree.
10.8.1.12 Substitution of an Ensemble

1. In order to be given permission to substitute another large ensemble for a required or complementary large ensemble for a term, a student must:
   - have completed the minimum number of terms in the required or complementary large ensemble;
   - however, if a student does satisfy the above requirements (first bullet) under section 10.8.1.11: Exemption from a Required Ensemble, the Director of the required or complementary large ensemble may refuse consent if the student is needed in that ensemble.

2. Keyboard and Guitar Performance majors in all programs may substitute up to two (2) terms of Studio Accompanying (MUEN 584) for two (2) terms of choral ensembles.

3. Performance majors are not permitted to substitute Basic (large) Ensemble credits for required or complementary assigned small ensemble credits.

10.8.1.13 Rotation

Whenever possible and musically satisfactory, and in order to ensure equal opportunity and experience for students in the large instrumental ensembles, the seating of students in these ensembles may be rotated periodically throughout the term or year. The Director of the ensemble, along with the guidance of the Area Chairs and/or practical instruction teachers, will determine whether or not rotation is possible and musically satisfactory.

10.8.1.14 Missed Classes due to Field Trips

Situations will arise where students are required to miss classes – both in the Schulich School of Music as well as in other faculties – because of field trips. Teaching staff in the Schulich School of Music are encouraged to assist students who approach them for information about course content and assignments that have been missed. Nonetheless, the onus remains on the student who goes on a field trip to complete class work, to fill in all necessary forms and hand in proper documentation of the trip.

For Forms, please see section 10.8.1.7: Request to be Excused from a Rehearsal.

10.8.1.15 Transfer Credits

The previous ensemble participation of students coming to McGill from other universities will be recognized if their ensemble experience was similar to that required of McGill students; determination of this experience will be approved by the Area Chair and the Department Chair. In general, transfer credit is made on a term-for-term basis (not by credits) and usually does not exceed two (2) terms. Students are normally not permitted to reduce the basic (large) ensemble training requirements of their McGill program to less than the number of terms required for them to complete the rest of their program. In such cases, transfer credit may be given as Music Elective credit.

10.8.1.16 Extra Large Ensemble Credits

Basic Ensemble Training credits accumulated above the minimum may be applied as Music and/or Free Elective credits. Participation in additional large or small ensembles implies that the same policies will apply.

10.8.1.17 Performance Library

Students are responsible for the music that has been loaned to them for their use, and for its return in good condition to the Gertrude Whitley Performance Library. Students will be required to pay for the replacement of any music that has been lost, stolen, or damaged, and a hold on a student's Minerva account can be placed by the Performance Librarian should music or fines not be handed in to the Library.

10.8.2 Accompanying

Music students registered for practical instruction (including elective study) in one of the eligible instruments may request Accompanist Funding up to a maximum number of hours. Further details are available from the Department of Performance Office (performance.music@mcgill.ca).

10.8.3 Academic Category

All Music students are registered in one of the following categories:

Major: B.Mus. candidates may choose one or more of several majors as described under section 10.9: Programs of Study.

Faculty Program: A general B.Mus. program (see section 10.9.1.4: Bachelor of Music (B.Mus.) - Faculty Program Music (125 credits)).

L.Mus., Artist Dip.: Diploma programs are designed for advanced instrumentalists and singers who wish to concentrate on their practical subject.

Special: Those who are not proceeding towards a degree or diploma.

Visiting: Those taking courses at McGill for credit towards a degree at another university.
10.8.4 Auditing

For information on auditing, see University Regulations and Resources > Auditing of Courses.

10.8.5 Music/Free Electives

Unless otherwise specified, any music course numbered at the 200 level or higher that is not a required course in the student's program can be counted as a Music and/or Free Elective in the B.Mus. or Artist Diploma programs. Under certain conditions, three credits per term of practical instruction may be applied as Music and/or Free Electives only if the lessons are taken after completion of the final examination and/or completion of the number of terms designated in the student's program. Practical instruction in a second instrument at the 100 level, Jazz Materials 1 (MUJZ 160), and Jazz Materials 2 (MUJZ 161) may be taken for elective credit. Consult the Music Student Affairs Office for details. Basic Ensemble credits accumulated above the minimum may be applied as Music and/or Free Elective credits.

10.8.6 Non-Music Electives

In all B.Mus. programs, students are required to complete a minimum of three (3) elective credits from courses offered by other faculties. Students admitted from high schools outside Quebec, not holding a DCS, must complete an additional six (6) credits of non-Music electives (as part of the program prerequisites – Freshman program) for a total of nine (9) credits. Students should note that certain programs have requirements in addition to the above.

Students holding a DCS in Music are exempt from six (6) credits, and students holding a DCS in a non-Music program are exempt from 12 credits of non-Music electives. These credits will be counted towards the non-Music and/or free elective requirement.

The Schulich School of Music allows up to a maximum of 12 credits of English Second Language courses, including academic writing courses for non-anglophones, to students whose primary language is not English and have studied fewer than five years in an English-language secondary institution.

Placement tests are required for all ESL courses. For more information on placement tests, see www.mcgill.ca/mwc. Soon after the tests are evaluated, you will be issued a departmental approval for course registration.

Note: As of Summer 2011, the English as Second Language courses are being transferred to the School of Continuing Studies. Music students must obtain approval from the Music Student Affairs Office prior to registration.

10.8.7 Distance Education (online) Courses

Students may take a maximum of six credits of non-Music elective courses taught through distance education toward their B.Mus. degree at McGill. Courses taught through distance education from institutions other than McGill will be approved as transfer credits under the following conditions:

- The course is given by a government-accredited, degree-granting institution acceptable to McGill.
- The course counts for credit toward degrees granted at the institution giving the course.
- Prior approval for the course is obtained from the Music Student Affairs Office.

10.8.8 Course Changes

Students are permitted to change courses and/or sections of a course during the first two-week period of classes in each term. This is referred to as the official Course Change period. Course and section changes are made by the student, using Minerva to access his/her record directly. Worksheets for this purpose are available at the Music Student Affairs Office on the 7th floor of the New Music Building. For more information, see University Regulations and Resources > Course Change period.

Late course change requests, if approved, will be charged the applicable Late Course Change Fee. No charge will be made for late changes imposed by the Faculty. If students' registrations must be corrected after the Course Change period to bring their records into conformity with the courses they are actually taking, the students will be charged the late fee. For complete information on administrative fee charges and fines, please consult the Student Accounts website www.mcgill.ca/student-accounts/fees/adminfees.

10.8.9 Withdrawal from Course(s)

Students are permitted to withdraw from courses other than practical instruction or ensembles after the end of the Course Change period. In such cases, the student's mark in the course will be W. Course withdrawals are also processed on Minerva, within permissible dates. For more information, see University Regulations and Resources > Regulations Concerning Course Withdrawal.

The final deadlines for withdrawing from Music courses are:

- For a one-term course: The end of the seventh week of classes.
- For a two-term course: The end of the Course Change period in the second term.

THE DEADLINE FOR WITHDRAWING FROM PRACTICAL LESSONS AND ENSEMBLES IS THE END OF THE SECOND WEEK OF CLASSES IN ANY TERM.
Music students who, in special circumstances such as illness or injury, are given permission to withdraw from practical instruction after the end of the Course Change period will be charged $65 per week for 1-hour lessons and $97.50 per week for 1.5-hour lessons up to a maximum equivalent to the total fees charged for the course. Full refunds for practical instruction will be given up to the end of the Course Change period.

Note: Students who do not complete a course for which they remain registered will receive a grade of F or J.

For information on the REFUND POLICY, please see University Regulations and Resources > Regulations Concerning Course Withdrawal.

10.8.10 Incompletes

At the discretion of the instructor, a mark of K (Incomplete) may be given to a student who, due to extenuating circumstances, has not finished the coursework on time. The deadline for completion and submission of the required work shall be set by the instructor but may not be later than four months after the K was given. A special form for Incompletes, available from the Music Student Affairs Office, must be signed by the student and the instructor by the last day of lectures. If the final grade is not received within the specified timeline (as agreed by the instructor and student), the mark will be changed to KF (Incomplete Failed), unless an extension has been granted (KE). Completion of the course will cause the K to be replaced on official transcripts by the mark earned. A mark of K not cleared by mid-May makes the student ineligible for scholarships.

In exceptional cases, when research or an assignment cannot be completed for reasons beyond the student's control, students may be given permission by their Departmental Chair or the Associate Dean (Student Affairs) to leave a course permanently Incomplete (without penalty). The symbol K will be replaced by KK, in which case the student's Grade Point Average will be calculated without including this course.

10.8.11 Deferrals

Deferred examinations are permitted in the case of illness or other exceptional circumstances. Music students requesting a deferred examination in academic courses must submit the Request for a Deferred Examination form to the Senior Student Adviser. Students requesting a deferred examination in a practical music examination must submit the form to the Performance Department Chair. Supporting evidence such as an appropriate medical note is required. If the request is approved, an L (deferred) will appear in place of a grade. The grade obtained in the deferred examination will replace the grade of L (deferred) on the official transcript.

Deferred examinations in Music academic courses are given at the discretion of the instructor. A deferred examination in a Music practical examination will be held during the next examination period.

Deferred examinations in non-Music courses will be held in May for the Fall term and August for the Winter term. Examinations will follow the rules of the faculty concerned. It is the student's responsibility to check the date, time, and place of the deferred examination. A mark of L (deferred) not cleared by mid-May makes the student ineligible for scholarships.

Students who are unable to write a deferred exam must contact the Music Student Affairs Office immediately to initiate a withdrawal from the deferred exam. Deferred examinations cannot be written at a later date. If the withdrawal is not approved, a final grade of J (absent) will be entered and will count as a zero in the TGPA/CGPA.

10.8.12 Supplementals

Supplemental examinations in Music academic courses may be given at the discretion of the instructor. A student who receives a mark below 30% in a course is not permitted to take a supplemental examination but must repeat the course.

10.8.13 Rereading of Examinations

A student wishing to have an examination paper reread should apply in writing to the Associate Dean (Student Affairs). The mark given in the rereading, whether higher or lower, will replace the mark originally given. Any request to have a term paper or other coursework reassessed must be made directly to the instructor concerned.

10.8.14 Academic Standing

Academic Standing is based primarily on students' cumulative grade point average (CGPA), but may also be affected by their term grade point average (TGPA). Academic Standing, which is assessed after the end of each term, determines if students will be allowed to continue their studies in the next term and if any conditions will be attached to their registration.

Decisions about Academic Standing in the Fall term are based only on grades that are available in January. Grades for courses in which students have deferred examinations and Fall-term grades for courses that span the Fall and Winter terms do not affect Academic Standing for the Fall term, even though they will ultimately affect students' Fall TGPA. Therefore, Academic Standings for the Fall term are designated as “interim” and should be interpreted as advisory; moreover, interim Standings will not appear on external transcripts. Interim Standing decisions are mentioned below only if the rules for them differ from those for regular Standing decisions.

10.8.14.1 Satisfactory/Interim Satisfactory Standing

Students in Satisfactory Standing may continue in their program.

- New students are admitted to Satisfactory Standing.
• Students with a CGPA of 2.00 or greater are in Satisfactory Standing.

10.8.14.2 Probationary/Interim Probationary Standing

Students in Probationary Standing may continue in their program, but must carry a reduced load (maximum 14 credits per term) and raise their TGPA and CGPA to return to Satisfactory Standing. They should see their departmental adviser to discuss their course selection.

Students in Interim Probationary Standing may continue in their program, but should evaluate their course load and reduce it as appropriate. They are strongly advised to consult their departmental adviser, before the withdrawal deadlines, about their course selection for the Winter term.

• Students who were previously in Satisfactory Standing will be placed in Probationary Standing if their CGPA falls between 1.50 and 1.99.
• Students who were previously in Probationary Standing will remain in Probationary Standing if their CGPA falls between 1.50 and 1.99 and their TGPA is 2.50 or higher, although the TGPA requirement will not apply to the Summer term.
• Students who were previously in Interim Unsatisfactory Standing will be placed in Probationary Standing if their CGPA falls between 1.50 and 1.99 and their TGPA is 2.50 or higher.
• Students who were previously in Unsatisfactory Standing and who were readmitted to the Faculty by the Associate Dean (Student Affairs) will be placed in Probationary Standing if their CGPA is less than 2.00, but if they satisfy relevant conditions specified in their letter of readmission.

10.8.14.3 Readmitted Unsatisfactory Standing

Students who were previously in Unsatisfactory Standing and who were readmitted to the Faculty by the Associate Dean will have their Standing changed to readmitted Unsatisfactory Standing. Their course load is specified in their letter of readmission, as are the conditions they must meet to be allowed to continue in their program. They should see the Senior Student Adviser to discuss their course selection.

10.8.14.4 Unsatisfactory/Interim Unsatisfactory Standing

Students in Unsatisfactory Standing may continue in their program, but should evaluate their course load and reduce it as appropriate. They are strongly advised to consult the Senior Student Adviser, before the withdrawal deadlines, about their course selection for the Winter term.

Students in Unsatisfactory Standing who have failed to meet the minimum standards set by the Faculty may not continue in their program and their registration will be cancelled.

Appeals for readmission by students in Unsatisfactory Standing should be addressed to the Associate Dean no later than July 15 for readmission to the Fall term and November 15 for the Winter term. Readmission will be considered only when proof of extenuating circumstances that affected academic performance can be provided (e.g., medical or other documentation). Students in Unsatisfactory Standing for the second time must withdraw permanently.

Normally, supplemental examinations are not permitted; however, students in Unsatisfactory Standing may appeal to the senior student adviser for permission to write a supplemental examination, clearly stating the reasons for special consideration and providing proof as appropriate.

• Students will be placed in Unsatisfactory Standing (Winter or Summer term) or Interim Unsatisfactory Standing (Fall term) if their CGPA falls or remains below 1.50.
• For the Fall and Winter terms, students who were previously in Probationary, Readmitted Unsatisfactory, or Interim Unsatisfactory Standing will be placed in Unsatisfactory Standing if their TGPA falls below 2.50 and their CGPA is below 2.00.
• Students who were previously in Unsatisfactory Standing and who were readmitted to the Faculty by the Associate Dean (Student Affairs) who have not at least satisfied the conditions to attain Probationary Standing that were specified in the letter of readmission will be placed in Unsatisfactory Standing.

10.8.14.5 Incomplete Standings

Standing awaits deferred exam.

Must clear K’s, L’s, or Supplementals.

Standing Incomplete

Students with Incomplete Standings in the Winter or Summer term may register for the Fall term, but their Standing must be resolved by the end of the Course Change Period for that term. Students whose Incomplete Standing changes to Satisfactory, Probationary, or Interim Unsatisfactory Standing may continue in their program. Students whose Standing changes to Unsatisfactory Standing may not continue in their program.

Students whose Standing changes to Unsatisfactory and who wish to ask for permission to continue in their program must make a request to the Associate Dean (Student Affairs) as soon as they are placed in Unsatisfactory Standing. Readmission will be considered only when proof of extenuating circumstances that affected academic performance can be provided (e.g., medical or other documentation).

Students whose Standing is still Incomplete by the end of the Course Change period should immediately consult with the Music Student Affairs Office.

10.8.15 Graduation Requirements

1. Completion of all courses and proficiency requirements specified in the candidate's program. Students registered in two programs must fulfill all requirements for both programs. A minimum grade of C (or higher, depending on the program) must be achieved in all required courses, all complementary courses specified by course number, and in those courses which are prerequisites or corequisites. A grade of D (non-continuation pass) is acceptable only in elective courses or complementary courses that are not specified by course number.
2. Minimum cumulative grade point average of 2.00.
3. Completion of a minimum of credits in residence at McGill University (B.Mus.: 60 credits, L.Mus.: 48 credits, Artist Dip.: 32 credits).

For more information on applying to graduate, see [www.mcgill.ca/student-records/graduation/graduation-info](http://www.mcgill.ca/student-records/graduation/graduation-info).

### 10.8.16 Graduation Honours

For information on the designation of Dean’s Honour List awarded at graduation, see [University Regulations and Resources > Dean's Honour List](#).

For information on the designation of Distinction awarded at graduation, see [University Regulations and Resources > Distinction](#).

Departments may recommend to the Faculty that students be awarded Outstanding Achievement in recognition of superior performance on an instrument or in an academic discipline.

### 10.9 Programs of Study

The Department of Music Research offers undergraduate degrees in Composition, Music Education, Music History, Theory, and the Faculty Program. The Department also offers Minors in Music History and Composition and two Minors in the area of Music Technology.

The Department of Performance offers undergraduate degrees in Performance, Early Music Performance, and Jazz Performance and diploma programs in L.Mus. and the Artist Diploma.

#### 10.9.1 Department of Music Research: Composition; Music Education; Music History; Theory; Faculty Program

At both the undergraduate and graduate levels, the Department embraces the disciplines of Composition, Music Education, Music History, and Theory; and at the graduate level, Music Technology and Sound Recording. The philosophy of the Department is to encourage integration of the disciplines as much as possible within the learning process in each program of study: the development of basic musicianship, the absorption of the grammar and syntax of musical discourse, and the study of the world of ideas are understood as interconnected.

Major programs offer the student some focus with the flexibility to pursue other areas of interest. The Faculty program is intended to offer an option for individual and creative plans of study. All of the Department's programs give a solid grounding in analytic, synthetic, and writing skills that are useful preparation not only for the musical profession but also for professions as diverse as law, journalism, management, and librarianship.

The Music Education program combines an orientation towards a professional career in primary and secondary schools with sensitivity to broader intellectual frameworks against which teachers should understand their roles. This program is offered concurrently with the B.Ed., Music (see section 10.9.3: B.Mus./B.Ed. Bachelor of Music and Bachelor of Education Concurrent Program).

The Department also offers a Minor in Music History and a Minor in Composition to students who seek to place their work in a larger context, as well as a Minor in Musical Applications of Technology and a Minor in Musical Science and Technology to Music students and to students from other faculties.

For each program, all courses listed are REQUIRED courses unless otherwise indicated.

#### 10.9.1.1 Bachelor of Music (B.Mus.) - Major Composition (126 credits)

The Bachelor of Music (B.Mus.) - Major Composition program requires 91 credits (plus 35 credits for the Freshman requirement for out-of-province students).

It includes 21 credits of non-music and free elective courses so that students may pursue other academic interests outside of music.

**Program Prerequisites - Freshman Program (35 credits)**

35 credits selected as described below, in consultation with the Program Adviser:

- 23 credits of Prerequisite Courses
- 2 credits of Assigned Small Ensemble
- 4 credits of Basic Ensemble Training
- 6 credits of Non-Music Electives

**Prerequisite Courses**

23 credits, all of the courses below:

- **MUHL 186 (3)** Western Musical Traditions
- **MUIN 180 (3)** BMus Practical Lessons 1
- **MUIN 181 (3)** BMus Practical Lessons 2
Required Courses (60 credits)
60 credits selected as follows:
36 credits of Composition
9 credits of Theory
6 credits of Musicianship
3 credits of Music History
6 credits of Performance

Composition

MU245D1 (2) Composition 1
MU245D2 (2) Composition 1
MU261 (2) Orchestration 1
MU340D1 (2) Composition 2
MU340D2 (2) Composition 2
MU341 (3) Digital Studio Composition 1
MU342 (3) Digital Studio Composition 2
MU360 (2) Orchestration 2
MU440D1 (2) Composition 3
MU440D2 (2) Composition 3
MU460 (2) Orchestration 3
MU462 (3) Advanced Tonal Writing
MU541 (3) Advanced Digital Studio Composition 1
MU542 (3) Advanced Digital Studio Composition 2
MU575 (3) Topics in Composition

Theory

MUTH 250 (3) Theory and Analysis 3
MUTH 251 (3) Theory and Analysis 4
MUTH 350 (3) Theory and Analysis 5

Musicianship

MUSP 240 (2) Musicianship Training 3
MUSP 241 (2) Musicianship Training 4
MUSP 346 (2) Post-Tonal Musicianship
### Music History

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUHL 286</td>
<td>3</td>
<td>Critical Thinking About Music</td>
</tr>
</tbody>
</table>

### Performance

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUIN 280</td>
<td>3</td>
<td>BMus Practical Lessons 3</td>
</tr>
<tr>
<td>MUIN 281</td>
<td>3</td>
<td>BMus Practical Lessons 4</td>
</tr>
<tr>
<td>MUIN 283</td>
<td>0</td>
<td>BMus Concentration Final Examination</td>
</tr>
</tbody>
</table>

### Complementary Courses (10 credits)

10 credits selected as follows:
- 6 credits from Music History
- 4 credits from Performance

#### Music History

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUHL 385</td>
<td>3</td>
<td>Early Twentieth-Century Music</td>
</tr>
<tr>
<td>MUHL 391</td>
<td>3</td>
<td>Canadian Music</td>
</tr>
<tr>
<td>MUHL 392</td>
<td>3</td>
<td>Music since 1945</td>
</tr>
</tbody>
</table>

#### Performance

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUEN 563</td>
<td>2</td>
<td>Jazz Vocal Workshop</td>
</tr>
<tr>
<td>MUEN 572</td>
<td>2</td>
<td>Cappella Antica</td>
</tr>
<tr>
<td>MUEN 573</td>
<td>2</td>
<td>Baroque Orchestra</td>
</tr>
<tr>
<td>MUEN 587</td>
<td>2</td>
<td>Cappella McGill</td>
</tr>
<tr>
<td>MUEN 590</td>
<td>2</td>
<td>McGill Winds</td>
</tr>
<tr>
<td>MUEN 592</td>
<td>2</td>
<td>Chamber Jazz Ensemble</td>
</tr>
<tr>
<td>MUEN 593</td>
<td>2</td>
<td>Choral Ensembles</td>
</tr>
<tr>
<td>MUEN 594</td>
<td>2</td>
<td>Contemporary Music Ensemble</td>
</tr>
<tr>
<td>MUEN 595</td>
<td>2</td>
<td>Jazz Ensembles</td>
</tr>
<tr>
<td>MUEN 597</td>
<td>2</td>
<td>Orchestral Ensembles</td>
</tr>
</tbody>
</table>

### Non-Music Electives (3 credits)

### Free Electives (18 credits)

10.9.1.2 Bachelor of Music (B.Mus.) - Major Music History (126 credits)

The Bachelor of Music (B.Mus.) - Major Music History program requires 91 credits (plus 35 credits for the Freshman requirement for out-of-province students).

### Program Prerequisites - Freshman Program (35 credits)

35 credits selected as described below, in consultation with the Program Adviser:
- 23 credits of Prerequisite Courses
- 2 credits of Assigned Small Ensemble
- 4 credits of Basic Ensemble Training
- 6 credits of Non-Music Electives

### Prerequisite Courses
23 credits, all of the courses below:
Note: Students who can demonstrate through auditions and placement tests that they have mastered the material in any of the courses below will be exempt from them and may proceed to more advanced courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUHL 186</td>
<td>3</td>
<td>Western Musical Traditions</td>
</tr>
<tr>
<td>MUIN 180</td>
<td>3</td>
<td>BMus Practical Lessons 1</td>
</tr>
<tr>
<td>MUIN 181</td>
<td>3</td>
<td>BMus Practical Lessons 2</td>
</tr>
<tr>
<td>MUPD 135</td>
<td>1</td>
<td>Music as a Profession 1</td>
</tr>
<tr>
<td>MUPD 136</td>
<td>1</td>
<td>Music as a Profession 2</td>
</tr>
<tr>
<td>MUSP 140</td>
<td>2</td>
<td>Musicianship Training 1</td>
</tr>
<tr>
<td>MUSP 141</td>
<td>2</td>
<td>Musicianship Training 2</td>
</tr>
<tr>
<td>MUSP 170</td>
<td>1</td>
<td>Musicianship (Keyboard) 1</td>
</tr>
<tr>
<td>MUSP 171</td>
<td>1</td>
<td>Musicianship (Keyboard) 2</td>
</tr>
<tr>
<td>MUTH 150</td>
<td>3</td>
<td>Theory and Analysis 1</td>
</tr>
<tr>
<td>MUTH 151</td>
<td>3</td>
<td>Theory and Analysis 2</td>
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</tbody>
</table>

**Required History (6 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUHL 286</td>
<td>3</td>
<td>Critical Thinking About Music</td>
</tr>
<tr>
<td>MUHL 570</td>
<td>3</td>
<td>Research Methods in Music</td>
</tr>
</tbody>
</table>

**Complementary History (24 credits)**

24 credits selected from Group I, II, and III, with a minimum of 6 credits from each group.

**Group I**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUHL 377</td>
<td>3</td>
<td>Baroque Opera</td>
</tr>
<tr>
<td>MUHL 379</td>
<td>3</td>
<td>Solo Song 1100-1700</td>
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<tr>
<td>MUHL 380</td>
<td>3</td>
<td>Medieval Music</td>
</tr>
<tr>
<td>MUHL 381</td>
<td>3</td>
<td>Renaissance Music</td>
</tr>
<tr>
<td>MUHL 382</td>
<td>3</td>
<td>Baroque Music</td>
</tr>
<tr>
<td>MUHL 383</td>
<td>3</td>
<td>Classical Music</td>
</tr>
<tr>
<td>MUHL 395</td>
<td>3</td>
<td>Keyboard Literature before 1750</td>
</tr>
<tr>
<td>MUHL 591D1</td>
<td>1.5</td>
<td>Paleography</td>
</tr>
<tr>
<td>MUHL 591D2</td>
<td>1.5</td>
<td>Paleography</td>
</tr>
<tr>
<td>MUPP 381</td>
<td>3</td>
<td>Topics: Performance Practice before 1800</td>
</tr>
<tr>
<td>MUTH 426</td>
<td>3</td>
<td>Topics in Early Music Analysis</td>
</tr>
</tbody>
</table>

**Group II**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>MUHL 366</td>
<td>3</td>
<td>The Era of the Fortepiano</td>
</tr>
<tr>
<td>MUHL 372</td>
<td>3</td>
<td>Solo Song Outside Germany and Austria</td>
</tr>
<tr>
<td>MUHL 384</td>
<td>3</td>
<td>Romantic Music</td>
</tr>
<tr>
<td>MUHL 385</td>
<td>3</td>
<td>Early Twentieth-Century Music</td>
</tr>
<tr>
<td>MUHL 386</td>
<td>3</td>
<td>Chamber Music Literature</td>
</tr>
<tr>
<td>MUHL 387</td>
<td>3</td>
<td>Opera from Mozart to Puccini</td>
</tr>
<tr>
<td>MUHL 388</td>
<td>3</td>
<td>Opera After 1900</td>
</tr>
</tbody>
</table>
MUHL 389  (3)  Orchestral Literature
MUHL 390  (3)  The German Lied
MUHL 391  (3)  Canadian Music
MUHL 392  (3)  Music since 1945
MUHL 396  (3)  Era of the Modern Piano
MUHL 397  (3)  Choral Literature after 1750
MUHL 398  (3)  Wind Ensemble Literature after 1750

Group III
MUHL 330  (3)  Music and Film
MUHL 342  (3)  History of Electroacoustic Music
MUHL 362  (3)  Popular Music
MUHL 375  (3)  Introduction to Ethnomusicology
MUHL 393  (3)  History of Jazz
MUHL 529  (3)  Proseminar in Musicology
MUTH 541  (3)  Topics in Popular Music Analysis

Required Courses (19 credits)
9 credits from Theory
4 credits from Musicianship
6 credits from Performance

Theory
MUTH 250  (3)  Theory and Analysis 3
MUTH 251  (3)  Theory and Analysis 4
MUTH 350  (3)  Theory and Analysis 5

Musicianship
MUSP 240  (2)  Musicianship Training 3
MUSP 241  (2)  Musicianship Training 4

Performance
MUIN 280  (3)  BMus Practical Lessons 3
MUIN 281  (3)  BMus Practical Lessons 4
MUIN 283  (0)  BMus Concentration Final Examination

Complementary Courses (9 credits)
3 credits from Theory
2 credits from Musicianship
4 credits from Performance

Theory
3 credits of MUTH courses at the 200 or 300 level.
Musicianship
2 credits from:

MUSP 324 (2) Musicianship for Strings
MUSP 330 (2) Musicianship for Woodwind
MUSP 335 (2) Musicianship for Brass
MUSP 346 (2) Post-Tonal Musicianship
MUSP 350 (2) Musicianship for Pianists
MUSP 353 (2) Musicianship for Voice
MUSP 354 (2) Introduction to Improvisation and Ornamentation
MUSP 355 (2) Musicianship for Percussion
MUSP 381 (2) Singing Renaissance Notation

Performance
Basic Ensemble
4 credits from:

MUEN 563 (2) Jazz Vocal Workshop
MUEN 572 (2) Cappella Antica
MUEN 573 (2) Baroque Orchestra
MUEN 587 (2) Cappella McGill
MUEN 590 (2) McGill Winds
MUEN 592 (2) Chamber Jazz Ensemble
MUEN 593 (2) Choral Ensembles
MUEN 594 (2) Contemporary Music Ensemble
MUEN 595 (2) Jazz Ensembles
MUEN 597 (2) Orchestral Ensembles

Non-Music Electives (9 credits)

Free Electives (24 credits)

10.9.1.3 Bachelor of Music (B.Mus.) - Major Theory (126 credits)
The Bachelor of Music (B.Mus.) - Major Theory program requires 91 credits (plus 35 credits for the Freshman requirement for out-of-province students).

Program Prerequisites - Freshman Program (35 credits)
35 credits selected as described below, in consultation with the Program Adviser:

23 credits of Prerequisite Courses
2 credits of Assigned Small Ensemble
4 credits of Basic Ensemble Training
6 credits of Non-Music Electives

Prerequisite Courses
23 credits, select all of the courses below:

Note: Students who can demonstrate through auditions and placement tests that they have mastered the material in any of the courses below will be exempt from them and may proceed to more advanced courses.

MUHL 186 (3) Western Musical Traditions
MUIN 180  (3)  BMus Practical Lessons 1
MUIN 181  (3)  BMus Practical Lessons 2
MUPD 135  (1)  Music as a Profession 1
MUPD 136  (1)  Music as a Profession 2
MUSP 140  (2)  Musicianship Training 1
MUSP 141  (2)  Musicianship Training 2
MUSP 170  (1)  Musicianship (Keyboard) 1
MUSP 171  (1)  Musicianship (Keyboard) 2
MUTH 150  (3)  Theory and Analysis 1
MUTH 151  (3)  Theory and Analysis 2

**Required Courses (24 credits)**
24 credits of required courses selected as follows:
9 credits of Theory
6 credits of Musicianship
3 credits of Music History
6 credits of Performance

**Theory**
9 credits
MUTH 250  (3)  Theory and Analysis 3
MUTH 251  (3)  Theory and Analysis 4
MUTH 350  (3)  Theory and Analysis 5

**Musicianship**
6 credits
MUSP 240  (2)  Musicianship Training 3
MUSP 241  (2)  Musicianship Training 4
MUSP 346  (2)  Post-Tonal Musicianship

**Music History**
3 credits
MUHL 286  (3)  Critical Thinking About Music

**Performance**
6 credits
MUIN 280  (3)  BMus Practical Lessons 3
MUIN 281  (3)  BMus Practical Lessons 4
MUIN 283  (0)  BMus Concentration Final Examination

**Complementary Courses (40 credits)**
40 credits selected as follows:
30 credits of Theory (Complementary)
6 credits of Music History
4 credits of Performance

**Theory**
30 credits

6 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUTH 202</td>
<td>3</td>
<td>Modal Counterpoint 1</td>
</tr>
<tr>
<td>MUTH 204</td>
<td>3</td>
<td>Tonal Counterpoint 1</td>
</tr>
<tr>
<td>MUTH 302</td>
<td>3</td>
<td>Modal Counterpoint 2</td>
</tr>
<tr>
<td>MUTH 304</td>
<td>3</td>
<td>Tonal Counterpoint 2</td>
</tr>
</tbody>
</table>

6 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUTH 321</td>
<td>3</td>
<td>Topics in Tonal Analysis</td>
</tr>
<tr>
<td>MUTH 322</td>
<td>3</td>
<td>Topics in Post-Tonal Analysis</td>
</tr>
<tr>
<td>MUTH 426</td>
<td>3</td>
<td>Topics in Early Music Analysis</td>
</tr>
<tr>
<td>MUTH 541</td>
<td>3</td>
<td>Topics in Popular Music Analysis</td>
</tr>
</tbody>
</table>

6 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUTH 528</td>
<td>3</td>
<td>Schenkerian Theory and Analysis</td>
</tr>
<tr>
<td>MUTH 529</td>
<td>3</td>
<td>Proseminar in Music Theory</td>
</tr>
<tr>
<td>MUTH 538</td>
<td>3</td>
<td>Mathematical Models for Musical Analysis</td>
</tr>
</tbody>
</table>

12 credits selected from courses not taken above and the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUCO 462</td>
<td>3</td>
<td>Advanced Tonal Writing</td>
</tr>
<tr>
<td>MUCO 575</td>
<td>3</td>
<td>Topics in Composition</td>
</tr>
<tr>
<td>MUTH 539</td>
<td>3</td>
<td>Topics in Advanced Writing Techniques</td>
</tr>
</tbody>
</table>

**Music History**

6 credits of courses with an MUHL or MUPP prefix.

**Performance**

4 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUEN 563</td>
<td>2</td>
<td>Jazz Vocal Workshop</td>
</tr>
<tr>
<td>MUEN 572</td>
<td>2</td>
<td>Cappella Antica</td>
</tr>
<tr>
<td>MUEN 573</td>
<td>2</td>
<td>Baroque Orchestra</td>
</tr>
<tr>
<td>MUEN 587</td>
<td>2</td>
<td>Cappella McGill</td>
</tr>
<tr>
<td>MUEN 590</td>
<td>2</td>
<td>McGill Winds</td>
</tr>
<tr>
<td>MUEN 592</td>
<td>2</td>
<td>Chamber Jazz Ensemble</td>
</tr>
<tr>
<td>MUEN 593</td>
<td>2</td>
<td>Choral Ensembles</td>
</tr>
<tr>
<td>MUEN 594</td>
<td>2</td>
<td>Contemporary Music Ensemble</td>
</tr>
<tr>
<td>MUEN 595</td>
<td>2</td>
<td>Jazz Ensembles</td>
</tr>
<tr>
<td>MUEN 597</td>
<td>2</td>
<td>Orchestral Ensembles</td>
</tr>
</tbody>
</table>
Non-Music Electives (9 credits)

Free Electives (18 credits)

10.9.1.4 Bachelor of Music (B.Mus.) - Faculty Program Music (125 credits)

The Bachelor of Music (B.Mus.) - Faculty Program Music requires 125 credits and has been designed to accommodate those students who are either undecided about the area of music in which they wish to specialize, or who are interested in a pattern of specialization not provided in the established major programs, or who are interested in combining studies in music with studies in other disciplines. Students registered in the Faculty Program may, with the approval of a staff adviser, design their own programs around specific interests or develop programs with a broader base by incorporating courses from other disciplines and faculties.

Program Prerequisites - Freshman Program (35 credits)

35 credits selected as described below, in consultation with the Program Adviser:

23 credits of Prerequisite courses
2 credits of Assigned Small Ensemble
4 credits of Basic Ensemble Training
6 credits of non-Music electives

Prerequisite Courses

23 credits, all of the courses below:

Note: Students who can demonstrate through auditions and placement tests that they have mastered the material in any of the courses below will be exempt from them and may proceed to more advanced courses.

- MUHL 186 (3) Western Musical Traditions
- MUIN 180 (3) BMus Practical Lessons 1
- MUIN 181 (3) BMus Practical Lessons 2
- MUPD 135 (1) Music as a Profession 1
- MUPD 136 (1) Music as a Profession 2
- MUSP 140 (2) Musicianship Training 1
- MUSP 141 (2) Musicianship Training 2
- MUSP 170 (1) Musicianship (Keyboard) 1
- MUSP 171 (1) Musicianship (Keyboard) 2
- MUTH 150 (3) Theory and Analysis 1
- MUTH 151 (3) Theory and Analysis 2

Required Courses (22 credits)

22 credits of the required courses are selected as follows:

9 credits of Theory
4 credits of Musicianship
3 credits of Music History
6 credits of Performance

Theory

9 credits

- MUTH 250 (3) Theory and Analysis 3
- MUTH 251 (3) Theory and Analysis 4
- MUTH 350 (3) Theory and Analysis 5

Musicianship
4 credits
MUSP 240 (2) Musicianship Training 3
MUSP 241 (2) Musicianship Training 4

Music History
3 credits
MUHL 286 (3) Critical Thinking About Music

Performance
6 credits
MUIN 280 (3) BMus Practical Lessons 3
MUIN 281 (3) BMus Practical Lessons 4
MUIN 283 (0) BMus Concentration Final Examination

Complementary Courses (12 credits)

Music History
6 credits
(Courses with a MUHL or MUPP prefix may include MUHL 362 or MUHL 393, but not both)

Musicianship
2 credits from:
MUSP 324 (2) Musicianship for Strings
MUSP 330 (2) Musicianship for Woodwind
MUSP 335 (2) Musicianship for Brass
MUSP 346 (2) Post-Tonal Musicianship
MUSP 350 (2) Musicianship for Pianists
MUSP 353 (2) Musicianship for Voice
MUSP 354 (2) Introduction to Improvisation and Ornamentation
MUSP 355 (2) Musicianship for Percussion
MUSP 381 (2) Singing Renaissance Notation

Performance
4 credits from:
MUEN 563 (2) Jazz Vocal Workshop
MUEN 572 (2) Cappella Antica
MUEN 573 (2) Baroque Orchestra
MUEN 587 (2) Cappella McGill
MUEN 590 (2) McGill Winds
MUEN 592 (2) Chamber Jazz Ensemble
MUEN 593 (2) Choral Ensembles
MUEN 594 (2) Contemporary Music Ensemble
MUEN 595 (2) Jazz Ensembles
MUEN 597 (2) Orchestral Ensembles
Music Electives (20 credits)

Non-Music Electives (3 credits)

Free Electives (33 credits)

10.9.1.5 Special Prerequisite Courses for M.Mus. in Sound Recording

Note: changes are anticipated in the Special Prerequisite Courses for M.Mus. in Sound Recording. For the most up-to-date information, consult the Sound Recording Program website: [www.music.mcgill.ca/sr/build](http://www.music.mcgill.ca/sr/build).

Students wishing to follow this package of prerequisite courses while registered in the Faculty Program or in any other B.Mus. program must notify the Sound Recording Area Chair of their intent to do so.

**Schulich School of Music (27 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUCO 260</td>
<td>3</td>
<td>Instruments of the Orchestra</td>
</tr>
<tr>
<td>MUMT 202</td>
<td>3</td>
<td>Fundamentals of New Media</td>
</tr>
<tr>
<td>MUMT 203</td>
<td>3</td>
<td>Introduction to Digital Audio</td>
</tr>
<tr>
<td>MUSR 232</td>
<td>3</td>
<td>Introduction to Electronics</td>
</tr>
<tr>
<td>MUSR 300D1</td>
<td>3</td>
<td>Introduction to Music Recording</td>
</tr>
<tr>
<td>MUSR 300D2</td>
<td>3</td>
<td>Introduction to Music Recording</td>
</tr>
<tr>
<td>MUMT 301</td>
<td>3</td>
<td>Music and the Internet</td>
</tr>
<tr>
<td>MUSR 339</td>
<td>3</td>
<td>Introduction to Electroacoustics</td>
</tr>
</tbody>
</table>

One of (complementary):

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUMT 302</td>
<td>3</td>
<td>New Media Production 1</td>
</tr>
<tr>
<td>MUMT 306</td>
<td>3</td>
<td>Music and Audio Computing 1</td>
</tr>
</tbody>
</table>

**Faculty of Science (3 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 224</td>
<td>3</td>
<td>Physics of Music</td>
</tr>
</tbody>
</table>

Note: Students admitted as a Special Student in the prerequisite package for Sound Recording must meet with the Sound Recording Adviser prior to registering in MUMT (Music Technology) courses. In order to be considered for admission to the Master of Music in Sound Recording, students must attain a minimum grade of B in all of the above courses and must have a B.Mus. degree with a minimum CGPA of 3.00.

10.9.1.6 Minor Composition (18 credits)

The Minor Composition is available to all students with approval (with the exception of students in the Major Composition.) This option will take the place of music and/or free electives.

**Required Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUCO 230</td>
<td>3</td>
<td>The Art of Composition</td>
</tr>
<tr>
<td>MUCO 260</td>
<td>3</td>
<td>Instruments of the Orchestra</td>
</tr>
<tr>
<td>MUCO 341</td>
<td>3</td>
<td>Digital Studio Composition 1</td>
</tr>
</tbody>
</table>

**Complementary Courses (9 credits)**

9 credits selected from

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUHL 385</td>
<td>3</td>
<td>Early Twentieth-Century Music</td>
</tr>
<tr>
<td>MUHL 391</td>
<td>3</td>
<td>Canadian Music</td>
</tr>
<tr>
<td>MUHL 392</td>
<td>3</td>
<td>Music since 1945</td>
</tr>
<tr>
<td>MUTH 322</td>
<td>3</td>
<td>Topics in Post-Tonal Analysis</td>
</tr>
<tr>
<td>MUTH 539</td>
<td>3</td>
<td>Topics in Advanced Writing Techniques</td>
</tr>
</tbody>
</table>
10.9.1.7 Minor Music Education (18 credits)


The Minor in Music Education is available to all students, with the exception of students in the concurrent B.Mus.; Major in Music Education/B.Ed.; Major in Music Elementary and Secondary program, subject to the approval of the Schulich School of Music. This Minor will take the place of free electives. The Minor Music Education has limited enrolment. Students must choose complementary courses from one of the three available streams.

Required Courses

MUGT 401 (3) Issues in Music Education

Complementary Courses (15 credits)

15 credits selected from one of the following three streams:

Stream I: Studio Teaching

6 credits selected from:

- MUGT 205 (3) Psychology of Music
- MUGT 355 (3) Music in Early Childhood
- MUGT 358 (3) General Music for Adults and Teenagers
- MUGT 403 (3) Selected Topics in Music Education

9 credits selected from courses with a prefix of MUCT, MUGT, MUIT.

Stream II: Elementary Music

6 credits selected from:

- MUCT 235 (3) Vocal Techniques
- MUCT 315 (3) Choral Conducting 1
- MUGT 205 (3) Psychology of Music
- MUGT 354 (3) Music for Children
- MUGT 355 (3) Music in Early Childhood
- MUIT 250 (3) Guitar Techniques

9 credits selected from courses with a prefix of MUCT, MUGT, MUIT.

Stream III: Secondary Music

6 credits selected from:

- MUCT 235 (3) Vocal Techniques
- MUCT 315 (3) Choral Conducting 1
- MUCT 358 (3) General Music for Adults and Teenagers
- MUIT 201 (3) String Techniques
- MUIT 202 (3) Woodwind Techniques
- MUIT 203 (3) Brass Techniques
- MUIT 204 (3) Percussion Techniques
- MUIT 250 (3) Guitar Techniques
- MUIT 302 (3) Advanced Wind Techniques
- MUIT 315 (3) Instrumental Conducting
- MUIT 356 (3) Jazz Instruction: Philosophy and Techniques

9 credits selected from courses with a prefix of MUCT, MUGT, MUIT.
10.9.1.8  Minor Music History (18 credits)

The Minor Music History is available to all students (with the exception of students in the Major in Music History). This option will take the place of music electives and/or free electives, as well as history, literature, and performance practice complementary courses.

**History**

3 credits of:

- MUHL 570 (3)  Research Methods in Music

**Complementary**

15 credits selected from Music History complementary courses chosen freely from Groups I and II.

Note: MUHL 591D1 and MUHL 591D2 are selected together.

**Group I**

- MUHL 377 (3)  Baroque Opera
- MUHL 379 (3)  Solo Song 1100-1700
- MUHL 380 (3)  Medieval Music
- MUHL 381 (3)  Renaissance Music
- MUHL 382 (3)  Baroque Music
- MUHL 395 (3)  Keyboard Literature before 1750
- MUHL 591D1 (1.5)  Paleography
- MUHL 591D2 (1.5)  Paleography
- MUPP 381 (3)  Topics in Performance Practice

**Group II**

- MUHL 330 (3)  Music and Film
- MUHL 362 (3)  Popular Music
- MUHL 366 (3)  The Era of the Fortepiano
- MUHL 372 (3)  Solo Song Outside Germany and Austria
- MUHL 383 (3)  Classical Music
- MUHL 384 (3)  Romantic Music
- MUHL 385 (3)  Early Twentieth-Century Music
- MUHL 386 (3)  Chamber Music Literature
- MUHL 387 (3)  Opera from Mozart to Puccini
- MUHL 388 (3)  Opera After 1900
- MUHL 389 (3)  Orchestral Literature
- MUHL 390 (3)  The German Lied
- MUHL 391 (3)  Canadian Music
- MUHL 392 (3)  Music since 1945
- MUHL 393 (3)  History of Jazz
- MUHL 396 (3)  Era of the Modern Piano
- MUHL 397 (3)  Choral Literature after 1750
Revision, August 2011. End of revision.

10.9.1.9 Minor Music Theory (18 credits)


The Minor in Theory is available to all students, with the exception of students in the Major Theory, subject to approval of the Schulich School of Music. This Minor will take the place of free electives in Music programs.

Complementary Courses

- MUH 398 (3) Wind Ensemble Literature after 1750
- MUH 399 (3) Historical and Cultural Contexts
- MUCO 462 (3) Advanced Tonal Writing
- MUCO 575 (3) Topics in Composition
- MUJZ 260 (3) Jazz Arranging 1
- MUJZ 261 (3) Jazz Arranging 2
- MUMT 250 (3) Music Perception and Cognition
- MUTH 202 (3) Modal Counterpoint 1
- MUTH 204 (3) Tonal Counterpoint 1
- MUTH 251 (3) Theory and Analysis 4
- MUTH 302 (3) Modal Counterpoint 2
- MUTH 304 (3) Tonal Counterpoint 2
- MUTH 321 (3) Topics in Tonal Analysis
- MUTH 322 (3) Topics in Post-Tonal Analysis
- MUTH 350 (3) Theory and Analysis 5
- MUTH 426 (3) Topics in Early Music Analysis
- MUTH 528 (3) Schenkerian Theory and Analysis
- MUTH 529 (3) Proseminar in Music Theory
- MUTH 538 (3) Mathematical Models for Musical Analysis
- MUTH 539 (3) Topics in Advanced Writing Techniques
- MUTH 541 (3) Topics in Popular Music Analysis

Revision, August 2011. End of revision.

10.9.1.10 Minor Musical Applications of Technology (18 credits)

The goal of this Minor is to provide instruction in practical and creative applications of technology for musical purposes. This program will help prepare students for production-oriented jobs in the creative arts.

This program is open to students from any discipline and has no prerequisites other than familiarity with computers. Application forms will be available from the Department of Music Research (research.music@mcgill.ca; Room A726A) in the Schulich School of Music from February 1 and must be completed and returned to the Department of Music Research by June 1. Late applications will not be accepted and no students will be admitted to the Minor in January.

Successful applicants will be notified by June 20. Registration will be limited to available lab space.

Students will be selected on the basis of their previous background or experience in music technology and/or sound recording, their computer programming skills, their expressed interest in the program, and their Cumulative Grade Point Average.

Advising for the Minor is available from the Area Chair for the Music Technology Program, (Prof. Ichiro Fujinaga - ichiro.fujinaga@mcgill.ca). Further information on this program is available on the Music Technology website at: http://www.music.mcgill.ca/musictech/programmes_and_admissions.

Required Courses (12 credits)

12 credits, select all of the following:

- MUMT 202 (3) Fundamentals of New Media
- MUMT 250 (3) Music Perception and Cognition
Complementary Courses (6 credits)

6 credits selected from:

Note: Students select MUSR 300D1 and MUSR 300D2 together.

- MUHL 342 (3) History of Electroacoustic Music
- MUMT 301 (3) Music and the Internet
- MUMT 303 (3) New Media Production 2
- MUSR 300D1 (3) Introduction to Music Recording
- MUSR 300D2 (3) Introduction to Music Recording

10.9.1.11 Minor Musical Science and Technology (18 credits)

Revision, August 2011. Start of revision.

This Minor focuses on interdisciplinary topics in science and technology as applied to music. The goal of the program is to help prepare students for commercial jobs in the audio technology sector and/or for subsequent graduate research study. This Minor is designed to serve students who already have a good background in the sciences and prior experience with Math and Computer Science courses.

Application forms will be available from the Department of Music Research (research.music@mcgill.ca; Room A726C) in the Schulich School of Music from February 1, and must be completed and returned to the Department of Music Research by June 1. Late applications will not be accepted and no students will be admitted to the Minor in January. Successful applicants will be notified by June 20.

Registration will be limited to available lab space. Selection is based on previous experience in math, computer programming, and related sciences, expressed interest in the program, and Cumulative Grade Point Average.

Advising for the Minor is available from the Area Chair for the Music Technology program, (Prof. Ichiro Fujinaga - ichiro.fujinaga@mcgill.ca). Further information on this program is available on the Music Technology website at: http://www.music.mcgill.ca/musictech/programmes_and_admissions.

Required Courses (15 credits)

15 credits, select all of the following:

- MUMT 203 (3) Introduction to Digital Audio
- MUMT 250 (3) Music Perception and Cognition
- MUMT 306 (3) Music and Audio Computing 1
- MUMT 307 (3) Music and Audio Computing 2
- MUMT 501 (3) Digital Audio Signal Processing

Complementary Courses (3 credits)

3 credits selected from:

- MUMT 402 (3) Advanced Multimedia Development
- MUMT 502 (3) Senior Project: Music Technology
- PHYS 224 (3) Physics of Music

Revision, August 2011. End of revision.

10.9.2 Department of Performance

The Department offers undergraduate and graduate degree programs leading to the B.Mus., M.Mus., and D.Mus., and diploma programs leading to the L.Mus. and Artist Diploma in all areas of musical performance and a Graduate Diploma in Professional Performance. Programs include regular practical instruction available on all instruments and a highly developed ensemble program. The programs offer a number of major options including Orchestral Training, Solo, Jazz, and Early Music. The Orchestral Training program is one of the largest performance programs in North America. Many of its graduates are now members of professional orchestras throughout North America and Europe. McGill ensembles perform many concerts each year, including a number in centres across North America. McGill ensembles have performed at Carnegie Hall, Le Grand Théâtre [Quebec], the National Arts Centre, the International

For each program, all courses listed are REQUIRED courses unless otherwise indicated.

10.9.2.1 Bachelor of Music (B.Mus.) - Major Performance Piano (125 credits)

The Bachelor of Music (B.Mus.) - Major Performance Piano program requires 90 credits (plus 35 credits for the freshman requirement for out-of-province students).

125 credits are selected as follows:

- 35 credits - Prerequisite Requirements (for out-of-province students)
- 28 credits - Required Performance
- 14 credits - Complementary Performance
- 18 credits - Required Courses (Theory, Musicianship and Music History)
- 6 credits - Complementary Courses (Music History, Literature or Performance Practice)
- 21 credits - Free Electives
- 3 credits - Non-Music Electives

Special Requirements:

1. Continuation in the program requires a minimum grade of B- in practical instruction/exams and ensembles.

Program Prerequisites - Freshman Program (35 credits)

35 credits selected as described below, in consultation with the Program Adviser:

- 23 credits of Prerequisite Courses
- 2 credits of Assigned Small Ensemble
- 4 credits of Basic Ensemble Training
- 6 credits of Non-Music Electives

Prerequisite Courses

23 credits, all of the courses below:

Note: Students who can demonstrate through auditions and placement tests that they have mastered the material in any of the courses below will be exempt from them and may proceed to more advanced courses.

Students who have been admitted to a degree or diploma program with keyboard as their principal instrument are exempt from MUSP 170 (but not from MUSP 171); see section on Keyboard Proficiency testing for complete information.

MUHL 186 (3) Western Musical Traditions
MUIN 180 (3) BMus Practical Lessons 1
MUIN 181 (3) BMus Practical Lessons 2
MUPD 135 (1) Music as a Profession 1
MUPD 136 (1) Music as a Profession 2
MUSP 140 (2) Musicianship Training 1
MUSP 141 (2) Musicianship Training 2
MUSP 170 (1) Musicianship (Keyboard) 1
MUSP 171 (1) Musicianship (Keyboard) 2
MUTH 150 (3) Theory and Analysis 1
MUTH 151 (3) Theory and Analysis 2

Required Performance (28 credits)
28 credits, select all the courses below:

- **MUIN 280** (3) BMus Practical Lessons 3
- **MUIN 281** (3) BMus Practical Lessons 4
- **MUIN 282** (0) BMus Performance Examination 1
- **MUIN 333** (0) Piano Techniques 2
- **MUIN 369** (0) Concerto
- **MUIN 380** (3) BMus Practical Lessons 5
- **MUIN 381** (3) BMus Practical Lessons 6
- **MUIN 382** (0) BMus Performance Examination 2
- **MUIN 433** (0) Piano Techniques 3
- **MUIN 480** (3) BMus Practical Lessons 7
- **MUIN 481** (3) BMus Practical Lessons 8
- **MUIN 482** (0) BMus Performance Examination 3
- **MUPG 350** (2) Introduction to Piano Pedagogy
- **MUPG 356** (2) Piano Repertoire Studies 1
- **MUPG 357** (2) Piano Repertoire Studies 2
- **MUPG 541** (2) Senior Piano Seminar 1
- **MUPG 542** (2) Senior Piano Seminar 2

**Complementary Performance (14 credits)**

Large Ensemble during the first four terms (2 credits x 4 semesters).

14 credits of complementary performance selected as follows:

8 credits from:

- **MUEN 563** (2) Jazz Vocal Workshop
- **MUEN 572** (2) Cappella Antica
- **MUEN 587** (2) Cappella McGill
- **MUEN 590** (2) McGill Winds
- **MUEN 592** (2) Chamber Jazz Ensemble
- **MUEN 593** (2) Choral Ensembles
- **MUEN 594** (2) Contemporary Music Ensemble
- **MUEN 595** (2) Jazz Ensembles
- **MUEN 597** (2) Orchestral Ensembles

Assigned small ensemble - during every term of enrolment as a full-time or part-time student.

6 credits from:

- **MUEN 556** (1) Introduction to Collaborative Piano 1
- **MUEN 557** (1) Introduction to Collaborative Piano 2
- **MUEN 560** (1) Chamber Music Ensemble
- **MUEN 578** (1) Song Interpretation 1
- **MUEN 579** (1) Song Interpretation 2
- **MUEN 581** (1) Piano Ensemble Seminar 1
MUEN 582  (1) Piano Ensemble Seminar 2
MUEN 584  (1) Studio Accompanying
MUEN 585  (1) Sonata Masterclass

**Required Courses (18 credits)**
18 credits of required courses selected as follows:
9 credits of Theory
6 credits of Musicianship
3 credits of Music History

**Theory**
9 credits
- MUTH 250  (3) Theory and Analysis 3
- MUTH 251  (3) Theory and Analysis 4
- MUTH 350  (3) Theory and Analysis 5

**Musicianship**
6 credits
- MUSP 240  (2) Musicianship Training 3
- MUSP 241  (2) Musicianship Training 4
- MUSP 350  (2) Musicianship for Pianists

**Music History**
3 credits
- MUHL 286  (3) Critical Thinking About Music

**Complementary Music History, Literature or Performance Practice (6 credits)**
3 credits from:
- MUHL 366  (3) The Era of the Fortepiano
- MUHL 393  (3) History of Jazz
- MUHL 395  (3) Keyboard Literature before 1750

3 credits from courses with a MUHL or MUPP prefix

**Free Electives (21 credits)**
(May not include courses with a MUEN prefix.)

**Non-Music Electives (3 credits)**
16 credits - Required Courses (Theory, Musicianship and Music History)
8 credits - Complementary (Musicianship and Music History, Literature, or Performance Practice)
9 credits - Music Electives
3 credits - Non-Music Electives
18 credits - Free Electives

Special Requirements:
Continuation in the program requires a minimum grade of B- in practical instruction/exams and ensembles.

Program Prerequisites - Freshman Program (35 credits)
35 credits selected as described below, in consultation with the Program Adviser:
23 credits of Prerequisite Courses
2 credits of Assigned Small Ensemble
4 credits of Basic Ensemble Training
6 credits of Non-Music Electives

Prerequisite Courses
23 credits, all of the courses below:
Note: Students who can demonstrate through auditions and placement tests that they have mastered the material in any of the courses below will be exempt from them and may proceed to more advanced courses. Students who have been admitted to a degree or diploma program with keyboard as their principal instrument are exempt from MUSP 170 (but not from MUSP 171); see section on Keyboard Proficiency testing for complete information.

MUHL 186 (3) Western Musical Traditions
MUIN 180 (3) BMus Practical Lessons 1
MUIN 181 (3) BMus Practical Lessons 2
MUPD 135 (1) Music as a Profession 1
MUPD 136 (1) Music as a Profession 2
MUSP 140 (2) Musicianship Training 1
MUSP 141 (2) Musicianship Training 2
MUSP 170 (1) Musicianship (Keyboard) 1
MUSP 171 (1) Musicianship (Keyboard) 2
MUTH 150 (3) Theory and Analysis 1
MUTH 151 (3) Theory and Analysis 2

Required Performance (18 credits)
18 credits, select all the courses below:

MUIN 280 (3) BMus Practical Lessons 3
MUIN 281 (3) BMus Practical Lessons 4
MUIN 282 (0) BMus Performance Examination 1
MUIN 380 (3) BMus Practical Lessons 5
MUIN 381 (3) BMus Practical Lessons 6
MUIN 382 (0) BMus Performance Examination 2
MUIN 480 (3) BMus Practical Lessons 7
MUIN 481 (3) BMus Practical Lessons 8
MUIN 482 (0) BMus Performance Examination 3

Complementary Performance (18 credits)
Large Ensemble during the first four terms (2 credits x 4 semesters).
18 credits of complementary performance selected as follows:

12 credits from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Credits</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUEN 563</td>
<td>(2)</td>
<td>Jazz Vocal Workshop</td>
</tr>
<tr>
<td>MUEN 572</td>
<td>(2)</td>
<td>Cappella Antica</td>
</tr>
<tr>
<td>MUEN 573</td>
<td>(2)</td>
<td>Baroque Orchestra</td>
</tr>
<tr>
<td>MUEN 587</td>
<td>(2)</td>
<td>Cappella McGill</td>
</tr>
<tr>
<td>MUEN 592</td>
<td>(2)</td>
<td>Chamber Jazz Ensemble</td>
</tr>
<tr>
<td>MUEN 593</td>
<td>(2)</td>
<td>Choral Ensembles</td>
</tr>
<tr>
<td>MUEN 594</td>
<td>(2)</td>
<td>Contemporary Music Ensemble</td>
</tr>
<tr>
<td>MUEN 595</td>
<td>(2)</td>
<td>Jazz Ensembles</td>
</tr>
</tbody>
</table>

Assigned Small Ensemble - during every term of enrolment as a full-time or part-time student.

6 credits (1 credit per term) from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Credits</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUEN 560</td>
<td>(1)</td>
<td>Chamber Music Ensemble</td>
</tr>
<tr>
<td>MUEN 580</td>
<td>(1)</td>
<td>Early Music Ensemble</td>
</tr>
</tbody>
</table>

**Required Courses (16 credits)**

16 credits of required courses selected as follows:

9 credits of Theory
4 credits of Musicianship
3 credits of Music History

**Theory**

9 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Credits</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUTH 250</td>
<td>(3)</td>
<td>Theory and Analysis 3</td>
</tr>
<tr>
<td>MUTH 251</td>
<td>(3)</td>
<td>Theory and Analysis 4</td>
</tr>
<tr>
<td>MUTH 350</td>
<td>(3)</td>
<td>Theory and Analysis 5</td>
</tr>
</tbody>
</table>

**Musicianship**

4 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Credits</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSP 240</td>
<td>(2)</td>
<td>Musicianship Training 3</td>
</tr>
<tr>
<td>MUSP 241</td>
<td>(2)</td>
<td>Musicianship Training 4</td>
</tr>
</tbody>
</table>

**Music History**

3 credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Credits</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUHL 286</td>
<td>(3)</td>
<td>Critical Thinking About Music</td>
</tr>
</tbody>
</table>

**Complementary Courses (8 credits)**

**Musicianship**

2 credits from:

<table>
<thead>
<tr>
<th>Code</th>
<th>Credits</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSP 324</td>
<td>(2)</td>
<td>Musicianship for Strings</td>
</tr>
</tbody>
</table>
MUSP 354 (2) Introduction to Improvisation and Ornamentation
MUSP 381 (2) Singing Renaissance Notation

**Music History, Literature or Performance Practice**
6 credits
(Courses with a MUHL or MUPP prefix)

**Music Electives**
Guitars: 9 credits of Music Electives

Harpischord majors must include the following:
MUPG 272D1 (2) Continuo
MUPG 272D2 (2) Continuo
MUPG 372D1 (1) Continuo
MUPG 372D2 (1) Continuo

Plus 3 credits of Music Electives

Organ majors must include the following:
MUPG 272D1 (2) Continuo
MUPG 272D2 (2) Continuo

Plus 5 credits of Music Electives

**Non-Music Electives (3 credits)**

**Free Electives (18 credits)**
(May not include courses with a MUEN prefix)

**10.9.2.3 Bachelor of Music (B.Mus.) - Major Performance Voice (125 credits)**
The Bachelor of Music (B.Mus.) - Major Performance Voice program requires 90 credits (plus 35 credits for the Freshman requirement for out-of-province students).
125 credits are selected as follows:
35 credits - Prerequisite Requirements (for out-of-province students)
18 credits - Required Performance
21 credits - Complementary Performance
27 credits - Required Courses (Theory, Musicianship, Music History and Diction)
6 credits - Complementary History/Literature
3 credits - Non-Music Electives
15 credits - Free Electives

Special Requirements:
Continuation in the program requires a minimum grade of B- in practical instruction/exams, ensembles, and voice coaching.

**Program Prerequisites - Freshman Program (35 credits)**
35 credits selected as described below, in consultation with the Program Adviser:
23 credits of Prerequisite Courses
2 credits of Assigned Small Ensemble
4 credits of Basic Ensemble Training
6 credits of Non-Music Electives
Prerequisite Courses

23 credits, all of the courses below:

Note: Applicants who can demonstrate through auditions and placement tests that they have mastered the material in any of the courses below will be exempt from them and may proceed to more advanced courses.

MUHL 186 (3) Western Musical Traditions
MUIN 180 (3) BMus Practical Lessons 1
MUIN 181 (3) BMus Practical Lessons 2
MUPD 135 (1) Music as a Profession 1
MUPD 136 (1) Music as a Profession 2
MUSP 140 (2) Musicianship Training 1
MUSP 141 (2) Musicianship Training 2
MUSP 170 (1) Musicianship (Keyboard) 1
MUSP 171 (1) Musicianship (Keyboard) 2
MUTH 150 (3) Theory and Analysis 1
MUTH 151 (3) Theory and Analysis 2

Required Performance (18 credits)

MUIN 280 (3) BMus Practical Lessons 3
MUIN 281 (3) BMus Practical Lessons 4
MUIN 282 (0) BMus Performance Examination 1
MUIN 380 (3) BMus Practical Lessons 5
MUIN 381 (3) BMus Practical Lessons 6
MUIN 382 (0) BMus Performance Examination 2
MUIN 480 (3) BMus Practical Lessons 7
MUIN 481 (3) BMus Practical Lessons 8
MUIN 482 (0) BMus Performance Examination 3

Complementary Performance (21 credits)

Ensemble - during every term of enrolment as a full-time or part-time student

12 credits of complementary performance selected from:

MUEN 496 (2) Opera Studio
MUEN 563 (2) Jazz Vocal Workshop
MUEN 572 (2) Cappella Antica
MUEN 578 (1) Song Interpretation 1
MUEN 579 (1) Song Interpretation 2
MUEN 580 (1) Early Music Ensemble
MUEN 587 (2) Cappella McGill
MUEN 593 (2) Choral Ensembles
MUEN 594 (2) Contemporary Music Ensemble

9 credits of complementary performance selected from:
MUEN 553 (1) Vocal Chamber Ensemble
MUEN 554 (2) Opera Excerpts
MUIN 300 (2) Voice Coaching 1
MUIN 301 (2) Voice Coaching 2
MUPG 296 (1) Acting for Voice
MUPG 297 (1) Movement for Voice
MUPG 309 (1) Advanced Diction
MUPG 353 (2) Song Repertoire Class
MUPG 380 (2) Oratorio Class
MUPG 453 (2) Contemporary Repertoire for Voice

Required Courses (27 credits)
Selected as follows:
9 credits of Theory
6 credits of Musicianship
3 credits of Music History
9 credits of Diction

Theory
9 credits
MUTH 250 (3) Theory and Analysis 3
MUTH 251 (3) Theory and Analysis 4
MUTH 350 (3) Theory and Analysis 5

Musicianship
6 credits
MUSP 240 (2) Musicianship Training 3
MUSP 241 (2) Musicianship Training 4
MUSP 353 (2) Musicianship for Voice

Music History
3 credits
MUHL 286 (3) Critical Thinking About Music

Diction
9 credits
MUPG 209 (1) Introduction to Lyric Diction
MUPG 210 (2) Italian Diction
MUPG 211 (2) French Diction
MUPG 212 (2) English Diction
MUPG 213 (2) German Diction

Complementary History/Literature (6 credits)
Two of:

- MUHL 372 (3) Solo Song Outside Germany and Austria
- MUHL 377 (3) Baroque Opera
- MUHL 387 (3) Opera from Mozart to Puccini
- MUHL 388 (3) Opera After 1900
- MUHL 390 (3) The German Lied

**Electives (18 credits)**

- 3 credits of non-Music Electives
- 15 credits of Free Electives (may not include courses with a MUEN prefix)

Prior to, or concurrent with registration in the corresponding Diction courses, the Voice Major must furnish evidence of having completed English Second Language courses, ITAL 205D1/ITAL 205D2, GERM 202, and FRSL 207, or their equivalent. This language requirement may be fulfilled by appropriate high school or CEGEP courses, or as part of the non-music and/or free elective requirements above, or by extra university courses.

**10.9.2.4 Bachelor of Music (B.Mus.) - Major Performance (Orchestral Instruments) (125 credits)**

The Bachelor of Music (B.Mus.) - Major Performance (Orchestral Instruments) program requires 90 credits (plus 35 credits for the Freshman requirement for out-of-province students).

125 credits are selected as follows:

- 35 credits - Prerequisite Requirements (for out-of-province students)
- 18 credits - Required Performance
- 27 credits - Complementary Performance
- 16 credits - Required Courses (Theory, Musicianship, and Music History)
- 8 credits - Complementary Courses (Musicianship and Music History, Literature, or Performance Practice)
- 18 credits - Free Electives
- 3 credits - Non-Music Electives

**Ensemble Requirements:**

1. Students majoring in violin, viola, or cello must commence their assigned ensembles with four terms of string quartets.
2. Violin Majors will be required to complete two terms of ensemble playing on viola.

**Special Requirements:**

Continuation in the program requires a minimum grade of B- in practical instruction/exams and ensembles.

**Program Prerequisites - Freshman Program (35 credits)**

35 credits selected as described below, in consultation with the Program Adviser:

- 23 credits of Prerequisite Courses
- 2 credits of Assigned Small Ensemble
- 4 credits of Basic Ensemble Training
- 6 credits of Non-Music Electives

**Prerequisite Courses**

23 credits, all of the courses below:

Note: Applicants who can demonstrate through auditions and placement tests that they have mastered the material in any of the courses below will be exempt from them and may proceed to more advanced courses.

- MUHL 186 (3) Western Musical Traditions
- MUIN 180 (3) BMus Practical Lessons 1
- MUIN 181 (3) BMus Practical Lessons 2
- MUPD 135 (1) Music as a Profession 1
- MUPD 136 (1) Music as a Profession 2
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSP 140</td>
<td>(2)</td>
<td>Musicianship Training 1</td>
</tr>
<tr>
<td>MUSP 141</td>
<td>(2)</td>
<td>Musicianship Training 2</td>
</tr>
<tr>
<td>MUSP 170</td>
<td>(1)</td>
<td>Musicianship (Keyboard) 1</td>
</tr>
<tr>
<td>MUSP 171</td>
<td>(1)</td>
<td>Musicianship (Keyboard) 2</td>
</tr>
<tr>
<td>MUTH 150</td>
<td>(3)</td>
<td>Theory and Analysis 1</td>
</tr>
<tr>
<td>MUTH 151</td>
<td>(3)</td>
<td>Theory and Analysis 2</td>
</tr>
</tbody>
</table>

**Required Performance (18 credits)**

18 credits, select all the courses below:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUIN 280</td>
<td>(3)</td>
<td>BMus Practical Lessons 3</td>
</tr>
<tr>
<td>MUIN 281</td>
<td>(3)</td>
<td>BMus Practical Lessons 4</td>
</tr>
<tr>
<td>MUIN 282</td>
<td>(0)</td>
<td>BMus Performance Examination 1</td>
</tr>
<tr>
<td>MUIN 380</td>
<td>(3)</td>
<td>BMus Practical Lessons 5</td>
</tr>
<tr>
<td>MUIN 381</td>
<td>(3)</td>
<td>BMus Practical Lessons 6</td>
</tr>
<tr>
<td>MUIN 382</td>
<td>(0)</td>
<td>BMus Performance Examination 2</td>
</tr>
<tr>
<td>MUIN 480</td>
<td>(3)</td>
<td>BMus Practical Lessons 7</td>
</tr>
<tr>
<td>MUIN 481</td>
<td>(3)</td>
<td>BMus Practical Lessons 8</td>
</tr>
<tr>
<td>MUIN 482</td>
<td>(0)</td>
<td>BMus Performance Examination 3</td>
</tr>
</tbody>
</table>

**Complementary Performance (27 credits)**

Large Ensemble during the first four terms (2 credits x 4 semesters).

27 credits of complementary performance selected as follows:

12 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUEN 563</td>
<td>(2)</td>
<td>Jazz Vocal Workshop</td>
</tr>
<tr>
<td>MUEN 572</td>
<td>(2)</td>
<td>Cappella Antica</td>
</tr>
<tr>
<td>MUEN 573</td>
<td>(2)</td>
<td>Baroque Orchestra</td>
</tr>
<tr>
<td>MUEN 587</td>
<td>(2)</td>
<td>Cappella McGill</td>
</tr>
<tr>
<td>MUEN 590</td>
<td>(2)</td>
<td>McGill Winds</td>
</tr>
<tr>
<td>MUEN 592</td>
<td>(2)</td>
<td>Chamber Jazz Ensemble</td>
</tr>
<tr>
<td>MUEN 593</td>
<td>(2)</td>
<td>Choral Ensembles</td>
</tr>
<tr>
<td>MUEN 594</td>
<td>(2)</td>
<td>Contemporary Music Ensemble</td>
</tr>
<tr>
<td>MUEN 595</td>
<td>(2)</td>
<td>Jazz Ensembles</td>
</tr>
<tr>
<td>MUEN 597</td>
<td>(2)</td>
<td>Orchestral Ensembles</td>
</tr>
</tbody>
</table>

Assigned small ensemble - during every term of enrolment as a full-time or part-time student.

6 credits (1 credit per term) from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUEN 560</td>
<td>(1)</td>
<td>Chamber Music Ensemble</td>
</tr>
<tr>
<td>MUEN 580</td>
<td>(1)</td>
<td>Early Music Ensemble</td>
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<tr>
<td>MUEN 585</td>
<td>(1)</td>
<td>Sonata Masterclass</td>
</tr>
<tr>
<td>MUEN 589</td>
<td>(1)</td>
<td>Woodwind Ensembles</td>
</tr>
<tr>
<td>MUEN 598</td>
<td>(1)</td>
<td>Percussion Ensembles</td>
</tr>
</tbody>
</table>
9 credits from:
MUEN courses at the 400 or 500 level (maximum of 4 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>MUIN 269</td>
<td>(1)</td>
<td>Classical Concerto Exam</td>
</tr>
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<td>MUPG 224</td>
<td>(2)</td>
<td>Orchestral Excerpts Strings 1</td>
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<tr>
<td>MUPG 229</td>
<td>(1)</td>
<td>Traditional Drumming 1: Rudiments</td>
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<tr>
<td>MUPG 230</td>
<td>(2)</td>
<td>Orchestral Excerpts Woodwind 1</td>
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<tr>
<td>MUPG 235</td>
<td>(2)</td>
<td>Orchestral Excerpts Brass 1</td>
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<td>MUPG 324</td>
<td>(2)</td>
<td>Orchestral Excerpts Strings 2</td>
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<tr>
<td>MUPG 325</td>
<td>(2)</td>
<td>Improvisation for String Players</td>
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<td>MUPG 326</td>
<td>(2)</td>
<td>Introduction to String Pedagogy</td>
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<tr>
<td>MUPG 329</td>
<td>(1)</td>
<td>Traditional Drumming 2: Hand Drumming</td>
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<tr>
<td>MUPG 330</td>
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<td>Orchestral Excerpts Woodwind 2</td>
</tr>
<tr>
<td>MUPG 331</td>
<td>(2)</td>
<td>Introduction to Woodwind Pedagogy</td>
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<tr>
<td>MUPG 335</td>
<td>(2)</td>
<td>Orchestral Excerpts Brass 2</td>
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<tr>
<td>MUPG 336</td>
<td>(2)</td>
<td>Introduction to Brass Pedagogy</td>
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<td>MUPG 424</td>
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<tr>
<td>MUPG 425</td>
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<td>Extended Techniques - Strings</td>
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<td>MUPG 429</td>
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<td>MUPG 430</td>
<td>(2)</td>
<td>Orchestral Excerpts Woodwind 3</td>
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<td>MUPG 431</td>
<td>(2)</td>
<td>Extended Techniques - Woodwinds</td>
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<td>MUPG 435</td>
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<td>Extended Techniques - Brass</td>
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<td>MUPG 473</td>
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</tr>
<tr>
<td>MUPG 475</td>
<td>(3)</td>
<td>Special Project in Performance</td>
</tr>
</tbody>
</table>

**Required Courses (16 credits)**

16 credits of required courses selected as follows:
9 credits of Theory
4 credits of Musicianship
3 credits of Music History

**Theory**

9 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUTH 250</td>
<td>(3)</td>
<td>Theory and Analysis 3</td>
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<tr>
<td>MUTH 251</td>
<td>(3)</td>
<td>Theory and Analysis 4</td>
</tr>
<tr>
<td>MUTH 350</td>
<td>(3)</td>
<td>Theory and Analysis 5</td>
</tr>
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</table>

**Musicianship**

4 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSP 240</td>
<td>(2)</td>
<td>Musicianship Training 3</td>
</tr>
<tr>
<td>MUSP 241</td>
<td>(2)</td>
<td>Musicianship Training 4</td>
</tr>
</tbody>
</table>
Music History
3 credits
MUHL 286 (3) Critical Thinking About Music

Complementary Courses (8 credits)

Musicianship
2 credits from:
MUSP 324 (2) Musicianship for Strings
MUSP 330 (2) Musicianship for Woodwind
MUSP 335 (2) Musicianship for Brass
MUSP 355 (2) Musicianship for Percussion

Music History, Literature, or Performance Practice
6 credits
(Courses with a MUHL or MUPP prefix)
Percussionists must include:
MUHL 392 (3) Music since 1945

Non-Music Electives (3 credits)

Free Electives (18 credits)
(May not include courses with a MUEN prefix.)

10.9.2.5 Bachelor of Music (B.Mus.) - Major Early Music Performance (Baroque Violin, Viola, Cello, Viola da Gamba, Flute, Recorder, Oboe, Organ, Harpsichord and Early Brass Instruments) (125 credits)
This program requires 90 credits (plus 35 credits for the Freshman requirement for out-of-province students).
125 credits selected as follows:
35 credits - Prerequisite Requirements (for out-of-province students)
18 credits - Required Performance
24 credits - Complementary Performance
22 credits - Required Courses (Theory, Musicianship and Music History, Literature, or Performance Practice)
5 credits - Complementary
3 credits - Non-Music Electives
18 credits - Free Electives
Special Requirements:
Continuation in the program requires a minimum grade of B- in practical instruction/exams and ensembles.

Program Prerequisites - Freshman Program (35 credits)
35 credits selected as described below, in consultation with the Program Adviser:
23 credits of Prerequisite Courses
2 credits of Assigned Small Ensemble
4 credits of Basic Ensemble Training
6 credits of Non-Music Electives

Prerequisite Courses
23 credits, all of the courses below:
Note: Students who can demonstrate through auditions and placement tests that they have mastered the material in any of the courses below will be exempt from them and may proceed to more advanced courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>MUHL 186</td>
<td>3</td>
<td>Western Musical Traditions</td>
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<tr>
<td>MUIN 180</td>
<td>3</td>
<td>BMus Practical Lessons 1</td>
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<td>MUIN 181</td>
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<td>BMus Practical Lessons 2</td>
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<tr>
<td>MUPD 135</td>
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<td>Music as a Profession 1</td>
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<tr>
<td>MUPD 136</td>
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<tr>
<td>MUSP 140</td>
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<td>Musicianship Training 1</td>
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<tr>
<td>MUSP 141</td>
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<td>Musicianship Training 2</td>
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<tr>
<td>MUSP 170</td>
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<td>Musicianship (Keyboard) 1</td>
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<td>MUSP 171</td>
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<tr>
<td>MUTH 150</td>
<td>3</td>
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</tr>
<tr>
<td>MUTH 151</td>
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<td>Theory and Analysis 2</td>
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**Required Performance (18 credits)**

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<td>BMus Practical Lessons 3</td>
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<tr>
<td>MUIN 281</td>
<td>3</td>
<td>BMus Practical Lessons 4</td>
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<td>MUIN 282</td>
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<tr>
<td>MUIN 380</td>
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<td>BMus Practical Lessons 5</td>
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<td>MUIN 381</td>
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<td>BMus Practical Lessons 6</td>
</tr>
<tr>
<td>MUIN 382</td>
<td>0</td>
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</tr>
<tr>
<td>MUIN 480</td>
<td>3</td>
<td>BMus Practical Lessons 7</td>
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<td>MUIN 481</td>
<td>3</td>
<td>BMus Practical Lessons 8</td>
</tr>
<tr>
<td>MUIN 482</td>
<td>0</td>
<td>BMus Performance Examination 3</td>
</tr>
</tbody>
</table>

**Complementary Performance (24 credits)**

Large Ensemble - during every term of enrolment as a full-time or part-time student.

24 credits are selected as follows:

12 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>MUEN 563</td>
<td>2</td>
<td>Jazz Vocal Workshop</td>
</tr>
<tr>
<td>MUEN 572</td>
<td>2</td>
<td>Cappella Antica</td>
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<tr>
<td>MUEN 573</td>
<td>2</td>
<td>Baroque Orchestra</td>
</tr>
<tr>
<td>MUEN 587</td>
<td>2</td>
<td>Cappella McGill</td>
</tr>
<tr>
<td>MUEN 590</td>
<td>2</td>
<td>McGill Winds</td>
</tr>
<tr>
<td>MUEN 592</td>
<td>2</td>
<td>Chamber Jazz Ensemble</td>
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<tr>
<td>MUEN 593</td>
<td>2</td>
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<tr>
<td>MUEN 594</td>
<td>2</td>
<td>Contemporary Music Ensemble</td>
</tr>
<tr>
<td>MUEN 595</td>
<td>2</td>
<td>Jazz Ensembles</td>
</tr>
<tr>
<td>MUEN 597</td>
<td>2</td>
<td>Orchestral Ensembles</td>
</tr>
</tbody>
</table>

Assigned small ensemble - during every term of enrolment as a full-time or part-time student.

6 credits (1 credit x 6 semesters) of:
MUEN 580 (1) Early Music Ensemble

6 credits from:

**Baroque**
MUEN prefix - maximum 4 credits
- MUPG 473 (1) Special Project in Performance
- MUPG 474 (2) Special Project in Performance
- MUPG 475 (3) Special Project in Performance

**Harpischord**
- MUPG 272D1 (2) Continuo
- MUPG 272D2 (2) Continuo
- MUPG 372D1 (1) Continuo
- MUPG 372D2 (1) Continuo

**Organ**
MUEN prefix - maximum 2 credits
- MUPG 272D1 (2) Continuo
- MUPG 272D2 (2) Continuo
- MUPG 473 (1) Special Project in Performance
- MUPG 474 (2) Special Project in Performance
- MUPG 475 (3) Special Project in Performance

**Required Courses (22 credits)**
22 credits are selected as follows:
12 credits - Theory
4 credits - Musicianship
6 credits - Music History, Literature, or Performance Practice

**Theory**
12 credits
- MUTH 250 (3) Theory and Analysis 3
- MUTH 251 (3) Theory and Analysis 4
- MUTH 350 (3) Theory and Analysis 5
- MUTH 426 (3) Topics in Early Music Analysis

**Musicianship**
4 credits
- MUSP 240 (2) Musicianship Training 3
- MUSP 241 (2) Musicianship Training 4

**Music History, Literature, or Performance Practice**
6 credits
MUHL 286 (3) Critical Thinking About Music
MUPP 381 (3) Topics: Performance Practice before 1800

**Complementary Courses (5 credits)**

**Musicianship**

2 credits from:
- MUSP 354 (2) Introduction to Improvisation and Ornamentation
- MUSP 381 (2) Singing Renaissance Notation

**Music History, Literature, or Performance**

3 credits from:
- MUHL 377 (3) Baroque Opera
- MUHL 380 (3) Medieval Music
- MUHL 381 (3) Renaissance Music
- MUHL 382 (3) Baroque Music
- MUHL 383 (3) Classical Music
- MUHL 395 (3) Keyboard Literature before 1750
- MUHL 570 (3) Research Methods in Music
- MUHL 591D1 (1.5) Paleography
- MUHL 591D2 (1.5) Paleography

**Non-Music Electives (3 credits)**

**Free Electives (18 credits)**

(May not include courses with a MUEN prefix)

10.9.2.6 Bachelor of Music (B.Mus.) - Major Early Music Performance (Voice) (126 credits)

This program requires 91 credits (plus 35 credits for the Freshman requirement for out-of-province students).

126 credits selected as follows:
- 35 credits - Prerequisite Requirements (for out-of-province students)
- 22 credits - Required Performance
- 12 credits - Complementary Performance
- 31 credits - Required Courses (Theory, Musicianship, History, Literature or Performance Practice and Diction)
- 5 credits - Complementary Courses (Musicianship, Music History)
- 3 credits - Non-Music Electives
- 18 credits - Free Electives

Special Requirements:
Continuation in the program requires a minimum grade of B- in practical instruction/exams and ensembles.

**Program Prerequisites - Freshman Program (35 credits)**

35 credits selected as described below, in consultation with the Program Adviser:
- 23 credits of Prerequisite Courses
- 2 credits of Assigned Small Ensemble
- 4 credits of Basic Ensemble Training
6 credits of Non-Music Electives

Prerequisite Courses
23 credits, all of the courses below:
Note: Students who can demonstrate through auditions and placement tests that they have mastered the material in any of the courses below will be exempt from them and may proceed to more advanced courses.

MUHL 186 (3) Western Musical Traditions
MUIN 180 (3) BMus Practical Lessons 1
MUIN 181 (3) BMus Practical Lessons 2
MUPD 135 (1) Music as a Profession 1
MUPD 136 (1) Music as a Profession 2
MUPD 140 (2) Musicianship Training 1
MUPD 141 (2) Musicianship Training 2
MUPD 170 (1) Musicianship (Keyboard) 1
MUPD 171 (1) Musicianship (Keyboard) 2
MUTH 150 (3) Theory and Analysis 1
MUTH 151 (3) Theory and Analysis 2

Required Performance (22 credits)
MUIN 280 (3) BMus Practical Lessons 3
MUIN 281 (3) BMus Practical Lessons 4
MUIN 282 (0) BMus Performance Examination 1
MUIN 300 (2) Voice Coaching 1
MUIN 301 (2) Voice Coaching 2
MUIN 380 (3) BMus Practical Lessons 5
MUIN 381 (3) BMus Practical Lessons 6
MUIN 382 (0) BMus Performance Examination 2
MUIN 480 (3) BMus Practical Lessons 7
MUIN 481 (3) BMus Practical Lessons 8
MUIN 482 (0) BMus Performance Examination 3

Complementary Performance (12 credits)
Ensemble - during every term of enrolment as a full-time or part-time student.
12 credits are selected as follows:

12 credits selected from:
MUEN 496 (2) Opera Studio
MUEN 563 (2) Jazz Vocal Workshop
MUEN 572 (2) Cappella Antica
MUEN 578 (1) Song Interpretation 1
MUEN 579 (1) Song Interpretation 2
MUEN 580 (1) Early Music Ensemble
MUEN 587 (2) Cappella McGill
MUEN 593 (2) Choral Ensembles
MUEN 594 (2) Contemporary Music Ensemble

**Required Courses (31 credits)**

31 credits are selected as follows:

12 credits - Theory
4 credits - Musicianship
6 credits - Music History, Literature or Performance Practice
9 credits - Diction

**Theory**

12 credits

- MUTH 250 (3) Theory and Analysis 3
- MUTH 251 (3) Theory and Analysis 4
- MUTH 350 (3) Theory and Analysis 5
- MUTH 426 (3) Topics in Early Music Analysis

**Musicianship**

4 credits

- MUSP 240 (2) Musicianship Training 3
- MUSP 241 (2) Musicianship Training 4

**Music History, Literature or Performance Practice**

6 credits

- MUHL 286 (3) Critical Thinking About Music
- MUPP 381 (3) Topics: Performance Practice before 1800

**Diction**

9 credits

- MUPG 209 (1) Introduction to Lyric Diction
- MUPG 210 (2) Italian Diction
- MUPG 211 (2) French Diction
- MUPG 212 (2) English Diction
- MUPG 213 (2) German Diction

**Complementary Courses (5 credits)**

**Musicianship**

2 credits from:

- MUSP 353 (2) Musicianship for Voice
- MUSP 354 (2) Introduction to Improvisation and Ornamentation
- MUSP 381 (2) Singing Renaissance Notation

**Music History**

3 credits from:
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUHL 377</td>
<td>3</td>
<td>Baroque Opera</td>
</tr>
<tr>
<td>MUHL 380</td>
<td>3</td>
<td>Medieval Music</td>
</tr>
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<td>MUHL 381</td>
<td>3</td>
<td>Renaissance Music</td>
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<td>MUHL 382</td>
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<td>MUHL 383</td>
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<td>Classical Music</td>
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<td>MUHL 395</td>
<td>3</td>
<td>Keyboard Literature before 1750</td>
</tr>
<tr>
<td>MUHL 570</td>
<td>3</td>
<td>Research Methods in Music</td>
</tr>
<tr>
<td>MUHL 591D1</td>
<td>1.5</td>
<td>Paleography</td>
</tr>
<tr>
<td>MUHL 591D2</td>
<td>1.5</td>
<td>Paleography</td>
</tr>
</tbody>
</table>

**Non-Music Electives* (3 credits)**

**Free Electives* (18 credits)**

(May not include courses with a MUEN prefix)

* Prior to, or concurrent with registration in the corresponding Diction courses, the Voice Major must furnish evidence of having completed English Second Language courses, ITAL 205D1/ITAL 205D, GERM 202, and FRSL 207, or their equivalent. This language requirement may be fulfilled by appropriate high school or CEGEP courses, or as part of the non-music and/or free elective requirements above, or by extra university courses.

**10.9.2.7 Bachelor of Music (B.Mus.) - Major Performance Jazz (Saxophone, Trumpet, Trombone, Drums, Piano, Guitar, Bass, Voice) (126 credits)**

The Bachelor of Music (B.Mus) - Major Jazz Performance (Saxophone, Trumpet, Trombone, Drums, Piano, Guitar, Bass, Voice) program requires 91 credits (plus 35 credits for the Freshman requirement for out-of-province students).

126 credits are selected as follows:

- 35 credits - Prerequisite Requirements (for out-of-province students)
- 18 credits - Required Performance
- 18 credits - Complementary Performance
- 30 credits - Required Courses (Jazz improvisation, Theory and History)
- 4 credits - Complementary Music
- 3 credits - Non-Music Electives
- 18 credits - Free Electives

Special Requirements:

1. Students majoring in Jazz Performance must achieve a minimum grade of B- in all Jazz courses and Practical Instruction/Exams, including Jazz Combo and Ensembles, excluding MUJZ 100-level courses.

2. Non-Quebec jazz students must take four credits of non-jazz Basic Ensemble in the prerequisite year.

**Program Prerequisites - Freshman Program (35 credits)**

35 credits selected as described below, in consultation with the Program Adviser:

- 25 credits of Prerequisite Courses
- 4 credits of Basic Ensemble Training
- 6 credits of Non-Music Electives

**Prerequisite Courses**

25 credits, all of the courses below:

Note: Students who can demonstrate through auditions and placement tests that they have mastered the material in any of the courses listed below, will be exempt from them and may proceed to more advanced courses.

Incoming jazz students must take 4 credits of non-jazz Basic Ensemble in the prerequisite year. They may substitute, with the approval of the Department of Performance, non-jazz basic ensemble from another college or university for the extra credits required of non-Quebec applicants. Incoming jazz guitarists and pianists are automatically exempt from MUJZ 170 and MUJZ 171.
First-year students who have completed the Quebec Diploma of Collegial Studies (Diplôme d'études collégiales) in a Jazz concentration or equivalent, or students transferring from other universities or colleges, and have completed a course in the history of Jazz, with a grade of C or better, will be exempted from the first-year Jazz History Survey requirement (MUJZ 187).

Note: Jazz Combo MUEN 570 is taken in each term (1 credit + 1 credit)

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<thead>
<tr>
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<th>Credits</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>MUEN 570</td>
<td>(1)</td>
<td>Jazz Combo</td>
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<tr>
<td>MUIN 180</td>
<td>(3)</td>
<td>BMus Practical Lessons 1</td>
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<td>MUIN 181</td>
<td>(3)</td>
<td>BMus Practical Lessons 2</td>
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<td>MUJZ 160</td>
<td>(3)</td>
<td>Jazz Materials 1</td>
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<tr>
<td>MUJZ 161</td>
<td>(3)</td>
<td>Jazz Materials 2</td>
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<td>MUJZ 170</td>
<td>(1)</td>
<td>Jazz Keyboard Proficiency 1</td>
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<tr>
<td>MUJZ 171</td>
<td>(1)</td>
<td>Jazz Keyboard Proficiency 2</td>
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<td>MUJZ 187</td>
<td>(3)</td>
<td>Jazz History Survey</td>
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<td>MUPD 135</td>
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<td>MUPD 136</td>
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**Required Performance (18 credits)**

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<td>MUIN 380</td>
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<td>BMus Practical Lessons 5</td>
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<td>MUIN 382</td>
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<td>MUIN 481</td>
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<td>BMus Practical Lessons 8</td>
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<td>MUIN 482</td>
<td>(0)</td>
<td>BMus Performance Examination 3</td>
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</table>

**Complementary Performance (18 credits)**

Large Ensemble – during every term of enrolment as a full-time student or part-time student.

12 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUEN 563</td>
<td>(2)</td>
<td>Jazz Vocal Workshop</td>
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<tr>
<td>MUEN 572</td>
<td>(2)</td>
<td>Cappella Antica</td>
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<td>MUEN 573</td>
<td>(2)</td>
<td>Baroque Orchestra</td>
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<td>MUEN 587</td>
<td>(2)</td>
<td>Cappella McGill</td>
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<td>MUEN 590</td>
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<td>McGill Winds</td>
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<td>MUEN 592</td>
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<td>Chamber Jazz Ensemble</td>
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<td>MUEN 593</td>
<td>(2)</td>
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<tr>
<td>MUEN 597</td>
<td>(2)</td>
<td>Orchestral Ensembles</td>
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</table>
6 credits, select MUEN 570 (1 credit x 6 semesters):

MUEN 570 (1) Jazz Combo

Required Courses (30 credits)
Selected as follows:
12 credits of Jazz Improvisation
12 credits of Theory
6 credits of History

Jazz Improvisation
12 credits

- MUJZ 223 (3) Jazz Improvisation/Musicianship 1
- MUJZ 224 (3) Jazz Improvisation/Musicianship 2
- MUJZ 423 (3) Jazz Improvisation/Musicianship 3
- MUJZ 424 (3) Jazz Improvisation/Musicianship 4

Theory
12 credits

- MUJZ 260 (3) Jazz Arranging 1
- MUJZ 261 (3) Jazz Arranging 2
- MUJZ 340 (3) Jazz Composition 1
- MUJZ 341 (3) Jazz Composition 2

History
6 credits

- MUHL 286 (3) Critical Thinking About Music
- MUJZ 493 (3) Jazz Performance Practice

Complementary Music (4 credits)
One of the following pairs:
Select MUJZ 440D1 and MUJZ 440D2 OR MUJZ 461D1 and MUJZ 461D2.

- MUJZ 440D1 (2) Advanced Jazz Composition
- MUJZ 440D2 (2) Advanced Jazz Composition
- MUJZ 461D1 (2) Advanced Jazz Arranging
- MUJZ 461D2 (2) Advanced Jazz Arranging

Non-Music Electives (3 credits)

Free Electives (18 credits)
(May not include courses with a MUEN prefix)

10.9.2.8 Licentiate in Music (L.Mus.) - Major Performance Piano (93 credits)
The Licentiate in Music (L.Mus.) Major Performance Piano is a 93-credit program.
Note: Special Requirements:
1. Continuation in the program requires a minimum grade of A- in practical instruction/exams and ensembles.

2. Candidates must take the L.Mus. Performance 1 Examination at the end of their first year of study and the L.Mus. Performance 2 and 3 Examinations in each of the next two years if they hope to complete the program in the normal length of time.

**Required Performance (52 credits)**

52 credits selected as follows:

- MUIN 250 (8) L.Mus. Practical Instruction 1
- MUIN 251 (8) L.Mus. Practical Instruction 2
- MUIN 252 (0) L.Mus. Performance 1 Examination
- MUIN 333 (0) Piano Techniques 2
- MUIN 350 (8) L.Mus. Practical Instruction 3
- MUIN 351 (8) L.Mus. Practical Instruction 4
- MUIN 352 (0) L.Mus. Performance 2 Examination
- MUIN 369 (0) Concerto
- MUIN 433 (0) Piano Techniques 3
- MUIN 450 (8) L.Mus. Practical Instruction 5
- MUIN 451 (8) L.Mus. Practical Instruction 6
- MUIN 452 (0) L.Mus. Performance 3 Examination
- MUPG 541 (2) Senior Piano Seminar 1
- MUPG 542 (2) Senior Piano Seminar 2

**Complementary Performance (14 credits)**

Large Ensemble – during the first four terms (2 credits x 4 semesters).

14 credits selected as follows:

8 credits from:

- MUEN 563 (2) Jazz Vocal Workshop
- MUEN 572 (2) Cappella Antica
- MUEN 587 (2) Cappella McGill
- MUEN 590 (2) McGill Winds
- MUEN 592 (2) Chamber Jazz Ensemble
- MUEN 593 (2) Choral Ensembles
- MUEN 594 (2) Contemporary Music Ensemble
- MUEN 595 (2) Jazz Ensembles
- MUEN 597 (2) Orchestral Ensembles

6 credits from:

- MUEN 556 (1) Introduction to Collaborative Piano 1
- MUEN 557 (1) Introduction to Collaborative Piano 2
- MUEN 560 (1) Chamber Music Ensemble
- MUEN 578 (1) Song Interpretation 1
- MUEN 579 (1) Song Interpretation 2
- MUEN 581 (1) Piano Ensemble Seminar 1
Required Courses (27 credits)
27 credits of required courses selected as follows:
9 credits of Theory
12 credits of Musicianship
6 credits of History

Theory
- MUTH 150 (3) Theory and Analysis 1
- MUTH 151 (3) Theory and Analysis 2
- MUTH 250 (3) Theory and Analysis 3

Musicianship
- MUSP 140 (2) Musicianship Training 1
- MUSP 141 (2) Musicianship Training 2
- MUSP 170 (1) Musicianship (Keyboard) 1
- MUSP 171 (1) Musicianship (Keyboard) 2
- MUSP 240 (2) Musicianship Training 3
- MUSP 241 (2) Musicianship Training 4
- MUSP 350 (2) Musicianship for Pianists

History
- MUHL 186 (3) Western Musical Traditions
- MUHL 286 (3) Critical Thinking About Music

10.9.2.9 Licentiate in Music (L.Mus.) - Major Performance (All Instruments except Piano, Voice and Jazz) (93 credits)
The Licentiate in Music (L.Mus.) Major Performance in All Instruments except Piano, Voice, and Jazz is a 93-credit program.

Ensemble Requirements:
1. Students majoring in violin, viola, or cello must commence their assigned ensembles with four terms of string quartets.
2. Violin Majors will be required to complete two terms of ensemble playing on viola.

Special Requirements:
1. Continuation in the program requires a minimum grade of A- in practical instruction/exams and ensembles.
2. Students must take the L.Mus. Performance 1 Examination at the end of their first year of study and the L.Mus. Performance 2 and 3 Examinations in each of the next two years if they hope to complete the program in the normal length of time.

Required Performance (48 credits)
48 credits selected as follows:
- MUIN 250 (8) L.Mus. Practical Instruction 1
- MUIN 251 (8) L.Mus. Practical Instruction 2
- MUIN 252 (0) L.Mus. Performance 1 Examination
- MUIN 350 (8) L.Mus. Practical Instruction 3
### Complementary Performance (18 credits)

Large Ensemble Training – during every term of enrolment as a full-time or part-time student.

18 credits selected as follows:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUEN 563</td>
<td>(2)</td>
<td>Jazz Vocal Workshop</td>
</tr>
<tr>
<td>MUEN 572</td>
<td>(2)</td>
<td>Cappella Antica</td>
</tr>
<tr>
<td>MUEN 573</td>
<td>(2)</td>
<td>Baroque Orchestra</td>
</tr>
<tr>
<td>MUEN 587</td>
<td>(2)</td>
<td>Cappella McGill</td>
</tr>
<tr>
<td>MUEN 590</td>
<td>(2)</td>
<td>McGill Winds</td>
</tr>
<tr>
<td>MUEN 592</td>
<td>(2)</td>
<td>Chamber Jazz Ensemble</td>
</tr>
<tr>
<td>MUEN 593</td>
<td>(2)</td>
<td>Choral Ensembles</td>
</tr>
<tr>
<td>MUEN 594</td>
<td>(2)</td>
<td>Contemporary Music Ensemble</td>
</tr>
<tr>
<td>MUEN 595</td>
<td>(2)</td>
<td>Jazz Ensembles</td>
</tr>
<tr>
<td>MUEN 597</td>
<td>(2)</td>
<td>Orchestral Ensembles</td>
</tr>
</tbody>
</table>

Assigned Small Ensemble - during every term of enrolment as a full-time or part-time student.

6 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUEN 560</td>
<td>(1)</td>
<td>Chamber Music Ensemble</td>
</tr>
<tr>
<td>MUEN 580</td>
<td>(1)</td>
<td>Early Music Ensemble</td>
</tr>
<tr>
<td>MUEN 585</td>
<td>(1)</td>
<td>Sonata Masterclass</td>
</tr>
<tr>
<td>MUEN 589</td>
<td>(1)</td>
<td>Woodwind Ensembles</td>
</tr>
<tr>
<td>MUEN 591</td>
<td>(1)</td>
<td>Brass Consort</td>
</tr>
<tr>
<td>MUEN 598</td>
<td>(1)</td>
<td>Percussion Ensembles</td>
</tr>
</tbody>
</table>

### Required Courses (25 credits)

25 credits of required courses selected as follows:

9 credits of Theory

10 credits of Musicianship

6 credits of History

#### Theory

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>MUTH 150</td>
<td>(3)</td>
<td>Theory and Analysis 1</td>
</tr>
<tr>
<td>MUTH 151</td>
<td>(3)</td>
<td>Theory and Analysis 2</td>
</tr>
<tr>
<td>MUTH 250</td>
<td>(3)</td>
<td>Theory and Analysis 3</td>
</tr>
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</table>

#### Musicianship
Musicianship Training 1 (MUSP 140)
Musicianship Training 2 (MUSP 141)
Musicianship (Keyboard) 1 (MUSP 170)
Musicianship (Keyboard) 2 (MUSP 171)
Musicianship Training 3 (MUSP 240)
Musicianship Training 4 (MUSP 241)

History
MUHL 186 (3) Western Musical Traditions
MUHL 286 (3) Critical Thinking About Music

Complementary Musicianship
2 credits from:
MUSP 324 (2) Musicianship for Strings
MUSP 330 (2) Musicianship for Woodwind
MUSP 335 (2) Musicianship for Brass
MUSP 354 (2) Introduction to Improvisation and Ornamentation
MUSP 355 (2) Musicianship for Percussion
MUSP 381 (2) Singing Renaissance Notation

10.9.2.10 Licentiate in Music (L.Mus.) - Major Performance Voice (105 credits)
The Licentiate in Music (L.Mus.) Major Performance Voice is a 105-credit program.

Special Requirements:
1. Continuation in the program requires a minimum grade of A- in practical instruction/exams, ensembles, and voice coaching.
2. Candidates must take the L.Mus. Performance 1 Examination at the end of their first year of study and the L.Mus. Performance 2 and 3 Examinations in each of the next two years if they hope to complete the program in the normal length of time.

Required Performance (48 credits)
MUIN 250 (8) L.Mus. Practical Instruction 1
MUIN 251 (8) L.Mus. Practical Instruction 2
MUIN 252 (0) L.Mus. Performance 1 Examination
MUIN 350 (8) L.Mus. Practical Instruction 3
MUIN 351 (8) L.Mus. Practical Instruction 4
MUIN 352 (0) L.Mus. Performance 2 Examination
MUIN 450 (8) L.Mus. Practical Instruction 5
MUIN 451 (8) L.Mus. Practical Instruction 6

Complementary Performance (21 credits)
Large Ensemble Training – during every term of enrolment as a full-time or part-time student.
12 credits from:
MUEN 496 (2) Opera Studio
MUEN 563 (2) Jazz Vocal Workshop
MUEN 572 (2) Cappella Antica
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>MUEN 578</td>
<td>(1)</td>
<td>Song Interpretation 1</td>
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<tr>
<td>MUEN 579</td>
<td>(1)</td>
<td>Song Interpretation 2</td>
</tr>
<tr>
<td>MUEN 580</td>
<td>(1)</td>
<td>Early Music Ensemble</td>
</tr>
<tr>
<td>MUEN 587</td>
<td>(2)</td>
<td>Cappella McGill</td>
</tr>
<tr>
<td>MUEN 593</td>
<td>(2)</td>
<td>Choral Ensembles</td>
</tr>
<tr>
<td>MUEN 594</td>
<td>(2)</td>
<td>Contemporary Music Ensemble</td>
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9 credits from:

<table>
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<th>Course Name</th>
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<tbody>
<tr>
<td>MUEN 553</td>
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<td>Vocal Chamber Ensemble</td>
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<tr>
<td>MUEN 554</td>
<td>(2)</td>
<td>Opera Excerpts</td>
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<td>MUIN 300</td>
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<td>Voice Coaching 1</td>
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<td>MUIN 301</td>
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<td>MUPG 296</td>
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<td>Acting for Voice</td>
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<td>MUPG 297</td>
<td>(1)</td>
<td>Movement for Voice</td>
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<tr>
<td>MUPG 309</td>
<td>(1)</td>
<td>Advanced Diction</td>
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<tr>
<td>MUPG 353</td>
<td>(2)</td>
<td>Song Repertoire Class</td>
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<td>MUPG 380</td>
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<td>Oratorio Class</td>
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<tr>
<td>MUPG 453</td>
<td>(2)</td>
<td>Contemporary Repertoire for Voice</td>
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**Required Courses (36 credits)**

**Diction (9 credits)**

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<td>MUPG 209</td>
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<td>Introduction to Lyric Diction</td>
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<tr>
<td>MUPG 210</td>
<td>(2)</td>
<td>Italian Diction</td>
</tr>
<tr>
<td>MUPG 211</td>
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<td>MUPG 212</td>
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<td>English Diction</td>
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<td>MUPG 213</td>
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**Theory (9 credits)**

<table>
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<tr>
<td>MUTH 150</td>
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<td>MUTH 151</td>
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</tr>
<tr>
<td>MUTH 250</td>
<td>(3)</td>
<td>Theory and Analysis 3</td>
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**Musicianship (12 credits)**

<table>
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<tbody>
<tr>
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<td>MUSP 141</td>
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<td>Musicianship Training 2</td>
</tr>
<tr>
<td>MUSP 170</td>
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<td>Musicianship (Keyboard) 1</td>
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<tr>
<td>MUSP 171</td>
<td>(1)</td>
<td>Musicianship (Keyboard) 2</td>
</tr>
<tr>
<td>MUSP 240</td>
<td>(2)</td>
<td>Musicianship Training 3</td>
</tr>
<tr>
<td>MUSP 241</td>
<td>(2)</td>
<td>Musicianship Training 4</td>
</tr>
<tr>
<td>MUSP 353</td>
<td>(2)</td>
<td>Musicianship for Voice</td>
</tr>
</tbody>
</table>
History

MUHL 186 (3) Western Musical Traditions
MUHL 286 (3) Critical Thinking About Music

10.9.2.11 Licentiate in Music (L.Mus.) - Major Performance Jazz (100 credits)

The Licentiate in Music (L.Mus.) Major Performance Jazz is a 100-credit program with options in various instruments.

Special Requirements:
1. Continuation in the program requires that a grade of A- be maintained in practical instruction/exams and ensembles.
2. Candidates must take the L.Mus. Jazz Performance 1 Examination at the end of their first year of study and the L.Mus. Jazz Performance 2 and 3 Examinations in each of the next two years if they hope to complete the program in the normal length of time.

Required Performance (48 credits)

All of the following courses:

- MUIN 250 (8) L.Mus. Practical Instruction 1
- MUIN 251 (8) L.Mus. Practical Instruction 2
- MUIN 252 (0) L.Mus. Performance 1 Examination
- MUIN 350 (8) L.Mus. Practical Instruction 3
- MUIN 351 (8) L.Mus. Practical Instruction 4
- MUIN 352 (0) L.Mus. Performance 2 Examination
- MUIN 450 (8) L.Mus. Practical Instruction 5
- MUIN 451 (8) L.Mus. Practical Instruction 6
- MUIN 452 (0) L.Mus. Performance 3 Examination

Complementary Performance (18 credits)

Large Ensemble Training – during every term of enrolment as a full-time or part-time student.

18 credits selected as follows:

12 credits from:

- MUEN 563 (2) Jazz Vocal Workshop
- MUEN 572 (2) Cappella Antica
- MUEN 573 (2) Baroque Orchestra
- MUEN 587 (2) Cappella McGill
- MUEN 590 (2) McGill Winds
- MUEN 592 (2) Chamber Jazz Ensemble
- MUEN 593 (2) Choral Ensembles
- MUEN 594 (2) Contemporary Music Ensemble
- MUEN 595 (2) Jazz Ensembles
- MUEN 597 (2) Orchestral Ensembles

6 credits, select Jazz Combo Training - during every term of enrolment as a full-time or part-time student. MUEN 570 Jazz Combo (1 credit x 6 semesters).

Required Courses (30 credits)
30 credits selected as follows:
12 credits of Theory
12 credits of Improvisation/Musicianship
6 credits of History

Theory
- MUJZ 260 (3) Jazz Arranging 1
- MUJZ 261 (3) Jazz Arranging 2
- MUJZ 340 (3) Jazz Composition 1
- MUJZ 341 (3) Jazz Composition 2

Improvisation/Musicianship
- MUJZ 223 (3) Jazz Improvisation/Musicianship 1
- MUJZ 224 (3) Jazz Improvisation/Musicianship 2
- MUJZ 423 (3) Jazz Improvisation/Musicianship 3
- MUJZ 424 (3) Jazz Improvisation/Musicianship 4

History
- MUJZ 187 (3) Jazz History Survey
- MUJZ 493 (3) Jazz Performance Practice

Complementary Courses
4 credits from the following:
Note: Students select EITHER MUJZ 440D1 and MUJZ 440D2 OR MUJZ 461D1 and MUJZ 461D2.
- MUJZ 440D1 (2) Advanced Jazz Composition
- MUJZ 440D2 (2) Advanced Jazz Composition
- MUJZ 461D1 (2) Advanced Jazz Arranging
- MUJZ 461D2 (2) Advanced Jazz Arranging

10.9.2.12 Artist Diploma - Major Performance Voice (65 credits)
The Artist Diploma Major Performance Voice is a 65-credit program.
Special Requirements:
1. Continuation in the program requires a minimum grade of A- in practical instruction/exams, ensembles, and voice coaching.
2. Candidates who have not taken the courses in Italian, French, English, and German Diction as specified in the L.Mus. program must add them to the above requirements.
3. A leading operatic or oratorio role may substitute for one recital.
Note:
Courses taken as credit toward a B.Mus. or L.Mus. may not be applied to the Artist Diploma requirements except for the required courses in Theory, Musicianship and Music History or Performance Practice.

Required Performance (41 credits)
41 credits, select all the courses below:
- MUIN 460 (8) Artist Diploma Practical Instruction 1
- MUIN 461 (8) Artist Diploma Practical Instruction 2
- MUIN 462 (0) Artist Diploma Recital 1
### Complementary Performance (8 credits)
Large Ensemble Training - during every term of enrolment as a full-time or part-time student.

8 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUEN 496</td>
<td>2</td>
<td>Opera Studio</td>
</tr>
<tr>
<td>MUEN 563</td>
<td>2</td>
<td>Jazz Vocal Workshop</td>
</tr>
<tr>
<td>MUEN 572</td>
<td>2</td>
<td>Cappella Antica</td>
</tr>
<tr>
<td>MUEN 578</td>
<td>1</td>
<td>Song Interpretation 1</td>
</tr>
<tr>
<td>MUEN 579</td>
<td>1</td>
<td>Song Interpretation 2</td>
</tr>
<tr>
<td>MUEN 580</td>
<td>1</td>
<td>Early Music Ensemble</td>
</tr>
<tr>
<td>MUEN 587</td>
<td>2</td>
<td>Cappella McGill</td>
</tr>
<tr>
<td>MUEN 593</td>
<td>2</td>
<td>Choral Ensembles</td>
</tr>
<tr>
<td>MUEN 594</td>
<td>2</td>
<td>Contemporary Music Ensemble</td>
</tr>
</tbody>
</table>

### Required Courses (10 credits)
10 credits selected as follows:

6 credits of Theory
4 credits of Musicianship

**Theory**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUTH 310</td>
<td>3</td>
<td>Mid and Late 19th-Century Theory and Analysis</td>
</tr>
<tr>
<td>MUTH 311</td>
<td>3</td>
<td>20th-Century Theory and Analysis</td>
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**Musicianship**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
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<tr>
<td>MUSP 329</td>
<td>2</td>
<td>Musicianship 5</td>
</tr>
<tr>
<td>MUSP 331</td>
<td>2</td>
<td>Musicianship 6</td>
</tr>
</tbody>
</table>

### Complementary Music History or Performance Practice (6 credits)
6 credits selected from courses with a MUHL or MUPP prefix. These may include MUHL 362 or MUHL 393, but not both.

**10.9.2.13 Artist Diploma - Major Performance (All Instruments) (62 credits)**
The Artist Diploma is a 62-credit program offered in all areas of musical performance.

**Ensemble Requirement:**
1. Violin Majors will be required to complete two terms of ensemble playing on viola.

**Special Requirements:**
1. Continuation in the program requires a minimum grade of A- in practical instruction/exams and ensembles.
2. Guitarists may present a third recital, which may be counted as a substitute for 4 credits of ensemble. Organists may present a third recital or Concerto 1 and 2, which may be counted as a substitute for 4 credits of ensemble. For concerto requirements, refer to the "Postgraduate Study" section.

Note:
Courses taken as credit toward a B.Mus. or L.Mus. may not be applied to the Artist Diploma requirements except for the required courses in Theory, Musicianship and Music History or Performance Practics.

Required Performance (34 credits)
34 credits, select all the courses below:

- MUIN 460 (8) Artist Diploma Practical Instruction 1
- MUIN 461 (8) Artist Diploma Practical Instruction 2
- MUIN 462 (0) Artist Diploma Recital 1
- MUIN 469 (1) Artist Diploma Concerto 1
- MUIN 560 (8) Artist Diploma Practical Instruction 3
- MUIN 561 (8) Artist Diploma Practical Instruction 4
- MUIN 562 (0) Artist Diploma Recital 2
- MUIN 569 (1) Artist Diploma Concerto 2

Complementary Performance (12 credits)
Large Ensemble Training - during every term of enrolment as a full-time or part-time student.

8 credits from:
- MUEN 563 (2) Jazz Vocal Workshop
- MUEN 572 (2) Cappella Antica
- MUEN 573 (2) Baroque Orchestra
- MUEN 587 (2) Cappella McGill
- MUEN 590 (2) McGill Winds
- MUEN 592 (2) Chamber Jazz Ensemble
- MUEN 593 (2) Choral Ensembles
- MUEN 594 (2) Contemporary Music Ensemble
- MUEN 595 (2) Jazz Ensembles
- MUEN 597 (2) Orchestral Ensembles

Assigned Small Ensemble – during every term of enrolment as a full-time or part-time student.

4 credits from:
- MUEN 560 (1) Chamber Music Ensemble
- MUEN 578 (1) Song Interpretation 1
- MUEN 579 (1) Song Interpretation 2
- MUEN 580 (1) Early Music Ensemble
- MUEN 585 (1) Sonata Masterclass
- MUEN 589 (1) Woodwind Ensembles
- MUEN 591 (1) Brass Consort
- MUEN 598 (1) Percussion Ensembles

Non-Orchestral Instruments (8 credits)
Complementary ensembles, to be approved by the Department (minimum of two 1-credit ensembles per term for four terms).

**Required Courses (10 credits)**
10 credits of required courses are selected as follows:
6 credits of Theory
4 credits of Musicianship

**Theory**
6 credits, select the courses below:

- MUTH 310 (3) Mid and Late 19th-Century Theory and Analysis
- MUTH 311 (3) 20th-Century Theory and Analysis

**Musicianship**
4 credits, select all courses below:

- MUSP 329 (2) Musicianship 5
- MUSP 331 (2) Musicianship 6

**Complementary Music History, Literature or Performance Practice (6 credits)**
6 credits, select courses with a MUHL or MUPP prefix, may include MUHL 362 or MUHL 393, but not both.

**Non-Orchestral Instruments: Music Electives (4 credits)**

**10.9.2.14 Special Prerequisite Courses for M.Mus. in Performance**

**Piano Accompaniment (7 credits)**
(Major: Piano)
One of:

- MUHL 372 (3) Solo Song Outside Germany and Austria
- MUHL 390 (3) The German Lied

Two of:

- MUPG 210 (2) Italian Diction (or equivalent)
- MUPG 211 (2) French Diction (or equivalent)
- MUPG 212 (2) English Diction (or equivalent)
- MUPG 213 (2) German Diction (or equivalent)

**Orchestral Conducting (28 credits)**

- MUCO 260 (3) Instruments of the Orchestra
- MUCO 261 (2) Elementary Orchestration
- MUCO 460D1 (2) Advanced Orchestration
- MUCO 460D2 (2) Advanced Orchestration
- MUHL 389 (3) Orchestral Literature
- MUIT 201 (3) String Techniques
- MUIT 202 (3) Woodwind Techniques
- MUIT 203 (3) Brass Techniques
- MUIT 204 (3) Percussion Techniques
- MUPG 315D1 (2) Introduction to Orchestral Conducting (or equivalent)
- MUPG 315D2 (2) Introduction to Orchestral Conducting (or equivalent)
Choral Conducting (21 credits)

<table>
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<tr>
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<th>Credits</th>
<th>Description</th>
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<tbody>
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<td>3</td>
<td>German Language, Beginners</td>
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<tr>
<td>GERM 202D2</td>
<td>3</td>
<td>German Language, Beginners</td>
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<tr>
<td>MUCO 260</td>
<td>3</td>
<td>Instruments of the Orchestra</td>
</tr>
<tr>
<td>MUCO 261</td>
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<td>Elementary Orchestration</td>
</tr>
<tr>
<td>MUHL 397</td>
<td>3</td>
<td>Choral Literature after 1750</td>
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<tr>
<td>MUCT 415</td>
<td>3</td>
<td>Choral Conducting 2 (or equivalent)</td>
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<tr>
<td>MUIN 120</td>
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<tr>
<td>MUIN 121</td>
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Wind Band Conducting (20 credits)

(An undergraduate major in Wind or Percussion instruments.)

<table>
<thead>
<tr>
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<th>Credits</th>
<th>Description</th>
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<tbody>
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<td>Instruments of the Orchestra</td>
</tr>
<tr>
<td>MUCO 261</td>
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<td>Elementary Orchestration</td>
</tr>
<tr>
<td>MUHL 398</td>
<td>3</td>
<td>Wind Ensemble Literature after 1750</td>
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<tr>
<td>MUIT 202</td>
<td>3</td>
<td>Woodwind Techniques</td>
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<tr>
<td>MUIT 203</td>
<td>3</td>
<td>Brass Techniques</td>
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<tr>
<td>MUIT 204</td>
<td>3</td>
<td>Percussion Techniques</td>
</tr>
<tr>
<td>MUIT 415</td>
<td>3</td>
<td>Advanced Instrument Conducting (or equivalent)</td>
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Jazz Performance (14 credits)

<table>
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</thead>
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<tr>
<td>MUHL 393</td>
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<td>History of Jazz</td>
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<td>MUJZ 440D1</td>
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<td>Advanced Jazz Composition</td>
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<td>MUJZ 461D1</td>
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</tr>
<tr>
<td>MUJZ 493</td>
<td>3</td>
<td>Jazz Performance Practice</td>
</tr>
</tbody>
</table>

10.9.3 B.Mus./B.Ed. Bachelor of Music and Bachelor of Education Concurrent Program

The Bachelor of Education in Music is an integrated four-year 120-/121-credit program of initial teacher training that leads to certification as a teacher in the Province of Quebec. When offered concurrently with the Bachelor of Music (Major in Music Education), the program offers students the opportunity to obtain a Bachelor of Education degree and a Bachelor of Music degree after the completion of 137 credits, normally five years (172 credits or six years for out-of-province students). The Concurrent program combines academic studies in music, professional studies, and field experience. The two degrees are awarded during the same convocation period.

The components of the 137-credit Bachelor of Education in Music/Bachelor of Music (Music Education) are as follows:

- 55 professional credits
- 70 Music academic credits
- 12 elective credits (which must include 3 credits of non-Music electives)

Students in the Concurrent B.Mus./B.Ed. who receive an F or J in any Field Experience course are placed in Unsatisfactory Standing. Although they may complete their term, they are required to withdraw from the Concurrent program; however, they may apply to transfer to the B.Mus. Faculty program.

10.9.3.1 Concurrent Bachelor of Music (B.Mus.) - Major Music Education and Bachelor of Education (B.Ed.) - Music Elementary and Secondary (137 credits)

The Bachelor of Music (B.Mus.) - Major Music Education, when offered concurrently with the The Bachelor of Education - Major Music Elementary and Secondary, provides students with the opportunity to obtain a Bachelor of Music degree and a Bachelor of Education degree after the completion of 137 credits, normally five years (172 credits or six years for out-of-province students*). The Concurrent program combines academic studies in music, professional studies, and field experience. The two degrees are awarded during the same convocation period.
* Out-of-province students or those who have not completed Quebec CEGEP, French Baccalaureate, International Baccalaureate, or at least one year of university studies prior to commencing the Concurrent program.

To be admitted to the Concurrent program, students must satisfy the regular admission requirements of the Schulich School of Music and Faculty of Education. Normally, students will be admitted to both components of the Concurrent program simultaneously. Applicants who already hold a Bachelor of Music degree should apply to the Faculty of Education. Students who have completed 30 or more credits in a Bachelor of Music program, exclusive of the Freshman year for out-of-province students, should apply for admission to the Concurrent program.

All applications for the Concurrent program are to be made to the Admissions Office of the Schulich School of Music.

The B.Mus. Major Music Education program in the Schulich School of Music focuses on the development of the prospective music educator as a musician. This is achieved not only through core music history, theory, musicianship, and performance courses, but also through different instrumental, vocal, and conducting techniques courses. Laboratory experiences provide an opportunity to develop facility with basic music rehearsing/teaching techniques, with emphasis on the ability to diagnose and correct technical and musical problems. The B.Ed. Music Elementary and Secondary program in the Faculty of Education focuses on the development of the musician as an educator. This is achieved through courses in educational foundations, music pedagogy and pedagogical support, and a practicum component comprised of four field experiences and supporting professional seminars.

Students who decide to complete only a Bachelor of Music may transfer at any time into the Bachelor of Music, Faculty Program. Students who wish to complete only the Bachelor of Education Music program have the option of doing so after the successful completion of the first two years of the Concurrent Program and MUIN 283 "BMus Concentration Final Examination" or equivalent. They would be required to complete 61 music credits, 6 elective credits, and 55 education credits from the program given below.

The components of the 137-credit Concurrent Bachelor of Music - Major Music Education and Bachelor of Education - Music Elementary and Secondary are as follows:

- 55 professional Education credits
- 70 Music academic credits
- 9 Music elective credits
- 3 non-Music elective credits

**Program Prerequisites - Freshman Program**

35 credits

**Prerequisite Courses**

35 credits distributed as follows:

- 2 credits (1 credit per term) Assigned Small Ensemble
- 4 credits (2 credits per term) Basic Ensemble Training
- 6 credits of non-Music electives
- and 23 credits in the following course list:

Students who can demonstrate through auditions and placement tests that they have mastered the material in any of the courses below will be exempt from them and may proceed to more advanced courses. First-year students enrolled in the Bachelor of Music program who have completed the Quebec Diploma of Collegial Studies (Diplôme d'études collégiales) in a Music concentration or equivalent, or students transferring from other universities or colleges, who have successfully completed a course in the history of Western music, with a grade of C or better, will be exempted from the first-year Western Musical Traditions requirement (MUHL 186).

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUHL 186</td>
<td>3</td>
<td>Western Musical Traditions</td>
</tr>
<tr>
<td>MUIN 180</td>
<td>3</td>
<td>BMus Practical Lessons 1</td>
</tr>
<tr>
<td>MUIN 181</td>
<td>3</td>
<td>BMus Practical Lessons 2</td>
</tr>
<tr>
<td>MUPD 135</td>
<td>1</td>
<td>Music as a Profession 1</td>
</tr>
<tr>
<td>MUPD 136</td>
<td>1</td>
<td>Music as a Profession 2</td>
</tr>
<tr>
<td>MUSP 140</td>
<td>2</td>
<td>Musicianship Training 1</td>
</tr>
<tr>
<td>MUSP 141</td>
<td>2</td>
<td>Musicianship Training 2</td>
</tr>
<tr>
<td>MUSP 170</td>
<td>1</td>
<td>Musicianship (Keyboard) 1</td>
</tr>
<tr>
<td>MUSP 171</td>
<td>1</td>
<td>Musicianship (Keyboard) 2</td>
</tr>
<tr>
<td>MUTH 150</td>
<td>3</td>
<td>Theory and Analysis 1</td>
</tr>
<tr>
<td>MUTH 151</td>
<td>3</td>
<td>Theory and Analysis 2</td>
</tr>
</tbody>
</table>

**Required Music Components (49 credits)**
49 credits of required Music courses distributed as follows:

25 credits of Music Education
11 credits of Theory
4 credits of Musicianship
3 credits of Music History
6 credits of Performance

**Music Education**

25 credits:
- MUCT 235 (3) Vocal Techniques
- MUGT 215 (1) Basic Conducting Techniques
- MUGT 354 (3) Music for Children
- MUGT 358 (3) General Music for Adults and Teenagers
- MUGT 401 (3) Issues in Music Education
- MUIT 202 (3) Woodwind Techniques
- MUIT 203 (3) Brass Techniques
- MUIT 204 (3) Percussion Techniques
- MUIT 356 (3) Jazz Instruction: Philosophy and Techniques

**Theory**

11 credits:
- MUTH 250 (3) Theory and Analysis 3
- MUTH 251 (3) Theory and Analysis 4
- MUTH 350 (3) Theory and Analysis 5
- MUTH 461 (2) Choral and Keyboard Arranging

**Musicianship**

4 credits:
- MUSP 240 (2) Musicianship Training 3
- MUSP 241 (2) Musicianship Training 4

**Music History**

3 credits:
- MUHL 286 (3) Critical Thinking About Music

**Performance**

6 credits:
- MUIN 280 (3) BMus Practical Lessons 3
- MUIN 281 (3) BMus Practical Lessons 4
- MUIN 283 (0) BMus Concentration Final Examination

**Complementary Music Components (21 credits)**

21 credits of complementary Music courses distributed as follows:
9 credits of Music Education
2 credits of Musicianship
6 credits of Music History
4 credits of Performance

**Music Education**
3 credits, one of:
- MUIT 201 (3) String Techniques
- MUIT 250 (3) Guitar Techniques

3 credits, one of:
- MUCT 315 (3) Choral Conducting 1
- MUIT 315 (3) Instrumental Conducting

3 credits, select EDEA 362 or any course with a prefix of MUIT or MUGT.
- EDEA 362 (3) Movement, Music and Communication

**Musicianship**
2 credits from:
- MUSP 324 (2) Musicianship for Strings
- MUSP 330 (2) Musicianship for Woodwind
- MUSP 335 (2) Musicianship for Brass
- MUSP 346 (2) Post-Tonal Musicianship
- MUSP 350 (2) Musicianship for Pianists
- MUSP 353 (2) Musicianship for Voice
- MUSP 354 (2) Introduction to Improvisation and Ornamentation
- MUSP 355 (2) Musicianship for Percussion
- MUSP 381 (2) Singing Renaissance Notation

**Music History**
6 credits of courses with a MUHL or a MUPP prefix.

**Performance**
4 credits from:
- MUEN 563 (2) Jazz Vocal Workshop
- MUEN 572 (2) Cappella Antica
- MUEN 573 (2) Baroque Orchestra
- MUEN 587 (2) Cappella McGill
- MUEN 590 (2) McGill Winds
- MUEN 592 (2) Chamber Jazz Ensemble
- MUEN 593 (2) Choral Ensembles
- MUEN 594 (2) Contemporary Music Ensemble
- MUEN 597 (2) Orchestral Ensembles
**Electives (12 credits)**

- 9 credits of free electives
- 3 credits of non-Music electives

**Required Education Courses (45 credits)**

* Note: Students take either EDEE 355 or EDPE 304, but not both.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEA 206</td>
<td>1</td>
<td>1st Year Professional Seminar</td>
</tr>
<tr>
<td>EDEA 407</td>
<td>3</td>
<td>Final Year Professional Seminar Music</td>
</tr>
<tr>
<td>EDEA 442</td>
<td>3</td>
<td>Elementary Music Curriculum and Instruction</td>
</tr>
<tr>
<td>EDEA 472</td>
<td>3</td>
<td>Secondary Music Curriculum and Instruction</td>
</tr>
<tr>
<td>EDEC 215</td>
<td>0</td>
<td>English Language Requirement</td>
</tr>
<tr>
<td>EDEC 247</td>
<td>3</td>
<td>Policy Issues in Quebec Education</td>
</tr>
<tr>
<td>EDEE 355*</td>
<td>3</td>
<td>Classroom-based Evaluation</td>
</tr>
<tr>
<td>EDES 350</td>
<td>3</td>
<td>Classroom Practices (Secondary)</td>
</tr>
<tr>
<td>EDFE 205</td>
<td>2</td>
<td>First Field Experience (Music)</td>
</tr>
<tr>
<td>EDFE 208</td>
<td>3</td>
<td>Second Field Experience (Music)</td>
</tr>
<tr>
<td>EDFE 308</td>
<td>8</td>
<td>Third Field Experience (Music)</td>
</tr>
<tr>
<td>EDFE 407</td>
<td>7</td>
<td>Fourth Field Experience (Music)</td>
</tr>
<tr>
<td>EDPE 300</td>
<td>3</td>
<td>Educational Psychology</td>
</tr>
<tr>
<td>EDPE 304*</td>
<td>3</td>
<td>Measurement and Evaluation</td>
</tr>
<tr>
<td>EDPI 309</td>
<td>3</td>
<td>Exceptional Students</td>
</tr>
</tbody>
</table>

**Complementary Education Courses (10 credits)**

10 credits distributed as follows:

3 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 233</td>
<td>3</td>
<td>First Nations and Inuit Education</td>
</tr>
<tr>
<td>EDEC 248</td>
<td>3</td>
<td>Multicultural Education</td>
</tr>
<tr>
<td>EDEC 249</td>
<td>3</td>
<td>Global Education and Social Justice</td>
</tr>
</tbody>
</table>

1 credit from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 253</td>
<td>1</td>
<td>Second Professional Seminar (Kindergarten/Elementary)</td>
</tr>
<tr>
<td>EDEC 254</td>
<td>1</td>
<td>Second Professional Seminar (Secondary)</td>
</tr>
</tbody>
</table>

3 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 260</td>
<td>3</td>
<td>Philosophical Foundations</td>
</tr>
<tr>
<td>EDEC 261</td>
<td>3</td>
<td>Philosophy of Catholic Education</td>
</tr>
</tbody>
</table>

3 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 262</td>
<td>3</td>
<td>Media, Technology and Education</td>
</tr>
<tr>
<td>EDPT 200</td>
<td>3</td>
<td>Integrating Educational Technology in Classrooms</td>
</tr>
</tbody>
</table>
10.9.4 Management Minor Programs

The Desautels Faculty of Management offers a Minor in Management and a Minor in Marketing to B.Mus. undergraduates that allow Music students to include courses in their undergraduate program that will help prepare them for a career in music. All minors for non-Management students require the completion of an application; the form may be found at www.mcgill.ca/desautels/bcom/prospective_students/minors.

Detailed information on these minors can be found on the Desautels Faculty of Management website, www.mcgill.ca/desautels/bcom/prospective_students/minors, and under Desautels Faculty of Management > section 9.9.7: Minors for Non-Management Students.

10.10 Practical Subjects

All returning students must submit a green Lesson Assignment Card and/or orange Voice Coaching Assignment Card to the Performance Department by April 30 of each year they wish to register for lessons.

Students taking practical instruction, but who are registered for less than 12 credits per term, will be charged $785 in addition to the practical instruction fee ($500) and per-credit fee for their instrument lessons for each term in which they are, or become, part-time students (Artist Diploma students: $1,175 per term). This is the same fee applied to students who have used up their quota of lessons at the per-credit fee.

10.10.1 Practical Assignment and Lessons

10.10.1.1 Registration/Withdrawal

Registration for practical instruction and examinations (MUIN courses) is not available on Minerva. Students are reminded to submit a Lesson Assignment Card to the Department of Performance by the specified deadlines. Practical Instruction will then be added onto students’ records.

The deadline for withdrawing from practical lessons is the end of the second week of classes in any term.

10.10.1.2 Assignment of Teachers

The assignment of students to teachers for private lessons is the responsibility of the Chair of the Department of Performance. Student requests for specific teachers will be taken into consideration where possible.

It is understood that returning students will study with the same teacher unless prior arrangements have been made with the Chair of the Department in consultation with the teachers concerned. However, those students who do not return the Lesson Assignment Card (including Voice Coaching) by the specified deadline cannot be guaranteed the teacher of their choice, and they will be assessed a late fee of $50. Teacher assignments will be made soon after the period of enrolment and confirmed during the first week of classes. Following this assignment, it is the students' responsibility to contact their teachers and arrange lesson times.

Individual lessons missed as a consequence of the instructor's absence will be made up at the mutual convenience of the instructor and student. Lessons missed as the result of the student’s absence will be made up only if notice of cancellation has been given 48 hours in advance, or if a doctor's certificate is produced and prior notice of the cancellation is given.

Note: Students who are taking practical lessons in fulfilment of the requirements for any degree are required to study with teachers on the staff of the Schulich School of Music.

10.10.1.3 Credit Weights for Practical Study

<table>
<thead>
<tr>
<th>B.Mus. Elective or Concentration</th>
<th>3 credits per term</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.Mus. Major (Performance programs)</td>
<td>3 credits per term</td>
</tr>
<tr>
<td>L.Mus.</td>
<td>8 credits per term</td>
</tr>
<tr>
<td>Artist Diploma</td>
<td>8 credits per term</td>
</tr>
</tbody>
</table>
10.10.2 Examinations and Goals in Practical Subjects

Different levels of achievement are required of students depending upon the program of study for which they are registered. These levels are defined in part by the difficulty of material and length of program required at the various examinations, and in part by the examiners’ assessment of how well the student plays this material.

In general, there are five categories of practical study: Concentration Study, Major Study, Licentiate Study, Postgraduate Study, and Elective Study.

10.10.2.1 Concentration Study

A student in the Faculty program or specializing in Composition, Music Education, Music History, Music Technology, or Theory is obliged to present one examination in order to fulfill the practical requirement of these programs: the Concentration Final Examination (MUIN 283).

The sequence would normally be:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUIN 180</td>
<td>BMus Practical Lessons 1</td>
</tr>
<tr>
<td>MUIN 181</td>
<td>BMus Practical Lessons 2</td>
</tr>
<tr>
<td>MUIN 280</td>
<td>BMus Practical Lessons 3</td>
</tr>
<tr>
<td>MUIN 281</td>
<td>BMus Practical Lessons 4</td>
</tr>
<tr>
<td>MUIN 283</td>
<td>BMus Concentration Final Examination</td>
</tr>
</tbody>
</table>

BMus Concentration Final Examination (MUIN 283)

*Purpose:* To determine that the student is sufficiently accomplished to qualify for the degree of Bachelor of Music. In the event that the student is inadequately prepared, the panel may recommend to the department in which the student is registered that: a) the student be asked to withdraw from the program; or, b) the student be permitted to redo the examination.

*Panel:* A minimum of two staff members (not including the teacher), one of whom must be from the area. The panel is appointed by the Chair of the Department of Performance. At the discretion of the Departmental Chair, the teacher may be included on panels of three or more examiners.

*Distribution of Marks:* For students registered in practical lessons through the Schulich School of Music, the teacher submits a term mark which is included as 50% of the final mark. In instances where the student’s teacher is on the panel, the teacher’s global evaluation will nevertheless be equal to 50% of the final mark. This grade will also be entered in the student’s current or most recent term of practical instruction. When a student is not registered for lessons through the Schulich School of Music, the final mark will be the average of the marks submitted by the examination panel and will also be entered in the most recent term of practical instruction.

10.10.2.2 Major Study

A student majoring in Performance (B.Mus. or L.Mus.) must show talent for this field before being admitted to the program. The practical requirement for these programs comprises examinations and recitals as specified in the programs.

10.10.22.1 B.Mus. Major in Performance, Major in Early Music Performance, and Major in Jazz Performance

The sequence would normally be:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUIN 180</td>
<td>BMus Practical Lessons 1</td>
</tr>
<tr>
<td>MUIN 181</td>
<td>BMus Practical Lessons 2</td>
</tr>
<tr>
<td>MUIN 280</td>
<td>BMus Practical Lessons 3</td>
</tr>
<tr>
<td>MUIN 281</td>
<td>BMus Practical Lessons 4</td>
</tr>
<tr>
<td>MUIN 282</td>
<td>BMus Performance Examination 1</td>
</tr>
<tr>
<td>MUIN 380</td>
<td>BMus Practical Lessons 5</td>
</tr>
<tr>
<td>MUIN 333</td>
<td>Piano Techniques 2</td>
</tr>
<tr>
<td>MUIN 381</td>
<td>BMus Practical Lessons 6</td>
</tr>
<tr>
<td>MUIN 382</td>
<td>BMus Performance Examination 2</td>
</tr>
<tr>
<td>MUIN 480</td>
<td>BMus Practical Lessons 7</td>
</tr>
<tr>
<td>MUIN 433</td>
<td>Piano Techniques 3</td>
</tr>
</tbody>
</table>

McGill University, Undergraduate Programs, Courses and University Regulations, 2011-2012 (Published August 17, 2011)
BMus Practical Lessons 8
BMus Performance Examination 3

Concerto (mandatory test for pianists)

BMus Performance Examination 1 (MUIN 282)

*Purpose:* To assess the student’s progress in the practical area and determine whether or not the student may continue in the program. The panel may recommend to the Department that the student be: a) asked to withdraw from the program; b) permitted to continue to the BMus Performance Examination 2.

*Panel:* A minimum of three staff members, one of whom may be the student’s teacher. The panel is appointed by the Chair of the Department of Performance.

*Distribution of Marks:* The teacher submits a term mark, which is included as 50% of the final mark. In instances where the student’s teacher is on the panel, the teacher’s global evaluation will nevertheless be equal to 50% of the final mark. This grade will also be entered in the student’s current or most recent term of practical instruction.

BMus Performance Examination 2 (MUIN 382)

*Purpose:* To assess the student’s ability to perform a program of sufficient length and suitable repertoire as specified in the requirements for each instrument.

*Panel:* A minimum of three staff members, one of whom may be the student’s teacher. The panel is appointed by the Chair of the Department of Performance.

*Distribution of Marks:* Each member of the panel submits a mark for the examination, with the final mark being the average. This grade will also be entered in the student’s current or most recent term of practical instruction.

BMus Performance Examination 3 (MUIN 482)

*Purpose:* All recitals are to be performed in public before a jury and are intended to demonstrate technical mastery of their instrument/voice as well as an understanding of different musical styles appropriate to their level of study.

*Panel:* A minimum of three staff members, one of whom may be the student’s teacher. The panel is appointed by the Chair of the Department of Performance.

*Distribution of Marks:* Each member of the panel submits a mark for the examination, with the final mark being the average. This grade will also be entered in the student’s current or most recent term of practical instruction.

**10.10.2.3 Licentiate Study**

Students must show talent for this field before being admitted to the program. Grades of A- in all practical requirements are mandatory for continuation in the program.

### 10.10.2.3.1 L.Mus. Performance

The sequence would normally be:

- MUIN 250 L.Mus. Practical Instruction 1
- MUIN 251 L.Mus. Practical Instruction 2
- MUIN 252 L.Mus. Performance 1 Examination
- MUIN 350 L.Mus. Practical Instruction 3
- MUIN 333 Piano Techniques 2
- MUIN 351 L.Mus. Practical Instruction 4
- MUIN 352 L.Mus. Performance 2 Examination
- MUIN 450 L.Mus. Practical Instruction 5
- MUIN 433 Piano Techniques 3
- MUIN 451 L.Mus. Practical Instruction 6
- MUIN 452 L.Mus. Performance 3 Examination
MUIN 369  Concerto (mandatory test for pianists)

L.Mus. Performance 1 Examination (MUIN 252)

*Purpose*: To assess the student’s progress in the practical area and determine whether or not the student may continue in the program. The panel may recommend to the Department that the student be: a) asked to withdraw from the program; or b) permitted to continue to the L.Mus. Performance 2 Exam.

*Panel*: A minimum of three staff members, one of whom may be the student’s teacher. The panel is appointed by the Chair of the Department of Performance.

*Distribution of Marks*: The teacher submits a term mark, which is included as 50% of the final mark. In instances where the student’s teacher is on the panel, the teacher’s global evaluation will nevertheless be equal to 50% of the final mark. This grade will also be entered in the student’s current or most recent term of practical instruction.

L.Mus. Performance 2 Examination (MUIN 352)

*Purpose*: The recital is a public presentation, before a jury, intended to demonstrate competence in public solo performance. Non-keyboard performers and singers must use appropriate accompaniment.

*Panel*: A minimum of three staff members, one of whom may be the student’s teacher. The panel is appointed by the Chair of the Department of Performance.

*Distribution of Marks*: Each member of the panel submits a mark for the examination, with the final mark being the average. This grade will also be entered in the student’s current or most recent term of practical instruction.

L.Mus. Performance 3 Examination (MUIN 452)

*Purpose*: All recitals are to be performed in public before a jury and are intended to demonstrate technical mastery of their instrument/voice as well as an understanding of different musical styles appropriate to their level of study.

*Panel*: A minimum of three staff members, one of whom may be the student’s teacher. The panel is appointed by the Chair of the Department of Performance.

*Distribution of Marks*: Each member of the panel submits a mark for the examination, with the final mark being the average. This grade will also be entered in the student’s current or most recent term of practical instruction.

10.10.2.4 Postgraduate Study

**Artist Diploma** candidates must present a number of public recitals and fulfil various special performance requirements (concertos, chamber music, orchestral passages, etc.). Grades of A- in all practical requirements are mandatory for continuation in the program.

M.Mus. candidates should consult the *Graduate and Postdoctoral Studies Programs, Courses and University Regulations* publication for requirements of their program, available at [www.mcgill.ca/study](http://www.mcgill.ca/study).

Candidates for the *Graduate Diploma in Professional Performance* should consult the *Graduate and Postdoctoral Studies Programs, Courses and University Regulations* publication for requirements of their program, available at [www.mcgill.ca/study](http://www.mcgill.ca/study).

**10.10.2.4.1 Artist Diploma**

The sequence would normally be:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUIN 460</td>
<td>Artist Diploma Practical Instruction 1</td>
</tr>
<tr>
<td>MUIN 461</td>
<td>Artist Diploma Practical Instruction 2</td>
</tr>
<tr>
<td>MUIN 462</td>
<td>Artist Diploma Recital 1</td>
</tr>
<tr>
<td>MUIN 560</td>
<td>Artist Diploma Practical Instruction 3</td>
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<tr>
<td>MUIN 561</td>
<td>Artist Diploma Practical Instruction 4</td>
</tr>
<tr>
<td>MUIN 562</td>
<td>Artist Diploma Recital 2</td>
</tr>
<tr>
<td>MUIN 563</td>
<td>Artist Diploma Recital 3</td>
</tr>
</tbody>
</table>

In addition, the Artist Diploma program in orchestral instruments, piano, and voice requires the candidate to present two concertos:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUIN 469</td>
<td>Artist Diploma Concerto 1</td>
</tr>
<tr>
<td>MUIN 569</td>
<td>Artist Diploma Concerto 2</td>
</tr>
</tbody>
</table>
Applications for Artist Diploma Concerto hearings must be submitted to the Department of Performance Office five (5) weeks prior to the proposed date. The concerto examinations may be planned for any time during the academic session subject to the availability of examiners and facilities.

### Artist Diploma Recital 1 (MUIN 462)

**Purpose:** Recital programs are intended to demonstrate that the student is qualified to engage in professional performance activities, and has attained the high level of performing ability required for the Artist Diploma.

**Panel:** The panel consists of the Chair of the Department of Performance or delegate, as well as two staff members from the area concerned (in Voice recitals, one voice teacher plus one staff member from another area).

**Distribution of Marks:** Examiners judge the recital independently and submit their evaluation without consulting the other examiners. All of the examiners must judge the recital to be satisfactory for the candidate to pass. This grade will also be entered in the student’s current or most recent term of practical instruction.

### Artist Diploma Recital 2 (MUIN 562)

**Purpose:** Recital programs are intended to demonstrate that the student is qualified to engage in professional performance activities, and has attained the high level of performing ability required for the Artist Diploma.

**Panel:** The panel consists of the Chair of the Department of Performance or delegate, as well as two staff members from the area concerned (in Voice recitals, one voice teacher plus one staff member from another area).

**Distribution of Marks:** Examiners judge the recital independently and submit their evaluation without consulting the other examiners. All of the examiners must judge the recital to be satisfactory for the candidate to pass. This grade will also be entered in the student’s current or most recent term of practical instruction.

### Artist Diploma Recital 3 (MUIN 563)

**Purpose:** Recital programs are intended to demonstrate that the student is qualified to engage in professional performance activities, and has attained the high level of performing ability required for the Artist Diploma.

**Panel:** The panel consists of the Chair of the Department of Performance or delegate, as well as two staff members from the area concerned.

**Distribution of Marks:** Examiners judge the recital independently and submit their evaluation without consulting the other examiners. All of the examiners must judge the recital to be satisfactory for the candidate to pass.

### Artist Diploma Concerto 1 (MUIN 469)

**Purpose:** The Artist Diploma program in orchestral instruments, piano, and voice requires the candidate to present concertos which are normally examined only by a jury. The concerto examinations may be planned for any time during the academic session subject to the availability of examiners and facilities.

**Panel:** A minimum of three staff members, one of whom may be the student’s teacher. The panel is appointed by the Chair of the Department of Performance.

**Distribution of Marks:** Examiners judge the concerto independently and submit their evaluation without consulting the other examiners. All the examiners must judge the concerto to be satisfactory for the candidate to pass.

### Artist Diploma Concerto 2 (MUIN 569)

**Purpose:** The Artist Diploma program in orchestral instruments, piano, and voice requires the candidate to present concertos which are normally examined only by a jury. The concerto examinations may be planned for any time during the academic session subject to the availability of examiners and facilities.

**Panel:** A minimum of three staff members, one of whom may be the student’s teacher. The panel is appointed by the Chair of the Department of Performance.

**Distribution of Marks:** Examiners judge the concerto independently and submit their evaluation without consulting the other examiners. All the examiners must judge the concerto to be satisfactory for the candidate to pass.

### 10.10.2.5 Elective Study

Students may elect to pursue further practical study in addition to their curricular requirements. The student is not expected to follow a specific program. Additional fees apply.

### 10.11 Practical Examinations

Details of specific examination requirements for each area (Brass, Early Music, Guitar, Harp, Jazz, Organ, Percussion, Piano, Strings, Voice, Woodwinds) may be obtained from the Department of Performance Office.
10.11.1 Application for Examination

Examinations and recitals must be presented in one of the examination periods. When a student and his/her teacher agree to present a required practical examination, the student must make an application by the deadline specified below. Permission to withdraw from a practical examination will normally be granted only in the case of illness. A medical certificate must be submitted to the Department of Performance Office within seven days after the withdrawal request has been received. Withdrawal from a practical examination on other than medical grounds must be authorized by the Chair of the Department of Performance.

Application for the above examinations must be made on the appropriate form available at the Performance Office. Applicants must obtain their teacher's approval on this form and submit it according to the following schedule.

<table>
<thead>
<tr>
<th>Examination Period</th>
<th>Application Deadline*</th>
<th>Withdrawal Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 6-9, 2011**</td>
<td>June 1***</td>
<td>August 1</td>
</tr>
<tr>
<td>Specific dates for the Fall Examination Period are available at <a href="http://www.mcgill.ca/importantdates">www.mcgill.ca/importantdates</a></td>
<td>October 14</td>
<td>November 15</td>
</tr>
<tr>
<td>Specific dates for the Winter Examination Period are available at <a href="http://www.mcgill.ca/importantdates">www.mcgill.ca/importantdates</a></td>
<td>February 1</td>
<td>March 1</td>
</tr>
</tbody>
</table>

* All students must apply by this deadline. Applications may be withdrawn without penalty any time up to the withdrawal deadline given above.

** The September examination period is available only for Summer graduands. No supplemental examinations will be given at this time.

*** It is recommended that students planning to take an examination in September submit the program for approval before the end of May; otherwise, the program may not be seen by the Area Committee until September.

Applications received after these deadlines will only be accepted with special permission from the Chair of the Department of Performance, and on payment of a $50 late application fee.

10.11.2 Examination Marking

Normally, the final mark for any practical examination is the average of all the marks submitted by the individual examiners. In addition, however, at least half of the examiners on the panel must pass the student in order to continue to the next level of examination. (N.B.: the passing grade in the L.Mus. and Artist Diploma programs is A-; in the Major Performance programs, it is B-.) In instances where the average mark is a passing grade but a majority of the panel has failed the student, the final mark will be the letter grade immediately below the required passing grade.

11 Faculty of Religious Studies

11.1 About the Faculty of Religious Studies

The Faculty of Religious Studies has a long and distinguished history at McGill University and offers programs for those seeking to pursue the academic study of religion at both the undergraduate and graduate level. The Faculty recognizes the crucial role played by religion throughout history, as well as in contemporary society, and focuses on the study and analysis of the world’s religions as phenomena of human society. The Faculty takes a multidisciplinary approach to religious scholarship, incorporating a wide range of perspectives and methods.

The programs of study explore the many cultural, historical, and political issues related to both Eastern and Western religions and to religion in comparative perspective. The Faculty has four major teaching areas: (1) Asian Religions, (2) Biblical Studies, (3) Christian Thought and History, and (4) Religion and Culture. Currently, the Faculty of Religious Studies offers or contributes to six degrees – B.A., B.Th., and M.Div. (in affiliation with the Montreal School of Theology), as well as the graduate degrees S.T.M., M.A., and Ph.D. The B.A. Honours, Major, and Minor programs in Religious Studies are offered in cooperation with the Faculty of Arts.

Students in the Faculty develop expertise in one or more of the areas of Religious Studies at the undergraduate and graduate level. In the B.Th./M.Div. program, students prepare for the ordained ministry and for other professional careers in pastoral settings such as hospitals and schools.

The Colleges affiliated with the Faculty are the Montreal Diocesan Theological College of the Anglican Church of Canada; the Presbyterian College, Montreal; and the United Theological College of the United Church of Canada. They are all located close to the University campus.

The Faculty of Religious Studies is also the home of McGill’s Centre for Research on Religion/Centre de Recherche sur la Religion. CREOR coordinates and supports research on the main religions of the world, their differences and their common grounds, and how they contribute to a better understanding of past and present-day culture, ethics, and politics.
11.2 History of the Faculty

11.2.1 The Faculty and the Colleges

During the 19th century, several Theological Colleges in Montreal became affiliated with McGill. In 1912, they formed a Joint Board for the academic study of Theology, leaving each denominational College to provide its own professional training for Christian ministry. This relationship between the Colleges and the University led naturally to the creation in 1948 of a Faculty of Divinity, which assumed the academic functions of the Joint Board, now designated the Montreal School of Theology. In 1970, the name of the Faculty was changed to the Faculty of Religious Studies. This University Faculty now offers the Bachelor of Theology (B.Th.) degree and several graduate degree programs.

11.3 Facilities

The Faculty of Religious Studies is located in the handsome William and Henry Birks Building, erected in 1931, formerly known as Divinity Hall, at 3520 University Street. Besides the usual classrooms, offices, and common rooms, this building accommodates the Birks Heritage Chapel and the Birks Reading Room.

11.4 Birks Lectures

An annual series was established in 1950 through the generosity of the late William M. Birks. The lectures are given by distinguished visitors, usually in late September or early October. The first lecturer was the Right Reverend Leslie Hunter. More recent lecturers have included Huston Smith, Northrop Frye, Wilfred Cantwell Smith, Gregory Baum, Robert McAfee Brown, Krister Stendahl, Charles Adams, Jon Levenson, David Little, Azim Nanji, Paul Griffiths, Bernadette J. Broote, Harvey Cox, John S. Hawley, Gabriel Vahanian, Oliver O'Donovan, and Jan Assmann.

11.5 Numata Visiting Professor in Buddhist Studies

In recognition of the strong Buddhist Studies program in the Faculty of Religious Studies, the Numata Foundation has given a 20-year grant to the Faculty to bring a visiting scholar in Buddhist Studies to McGill each year. The visiting professor teaches one course at the 500 level, gives a public lecture, and is available to students for conferences and consultation. The first Numata Professor, in 1999-2000, was Dr. Mahinda Deegalle (Ph.D., Chicago), a Theravada Buddhist Sri Lankan monk. Subsequent visiting professors have included Dr. John Pettit, Professor Robert Morrison, Dr. Thupten Jinpa, Dr. Kate Crosby, Ven. Yifa, Dr. Robert Kritzer, Dr. Andrew Skilton, Dr. Joel Tatelman, Dr. Miriam Levering, Dr. Hiroko Kawanami, and Dr. Dorji Wangchuk. Dr. Martin Adam will be the visiting professor for 2011-2012.

11.6 About the Faculty of Religious Studies (Undergraduate)

Cultivating a thorough understanding of the world’s religions and the roles of religion throughout history and in contemporary society is at the heart of the Faculty of Religious Studies’ teaching at the undergraduate level. The Faculty takes a multidisciplinary approach to scholarship on a plurality of religions and incorporates a broad range of perspectives and methods. In studying the world’s religious traditions, we emphasize the ways in which religious expression and practices are embedded in culture, politics, aesthetics, and social change. Texts and traditions, languages and literatures, philosophy, and ethics are all integral to our undergraduate programs.

The Faculty’s undergraduate teaching supports two degrees, the B.A. and the B.Th. The Bachelor of Theology (B.Th.) offers an intensive study of Christianity primarily for students preparing for the ordained ministry and for other professional careers in pastoral settings such as hospitals and schools. The B.Th. contributes to the professional degree (M.Div.) offered through the Montreal School of Theology with which the Faculty is affiliated.

The B.A. programs in Religious Studies are offered in conjunction with the Faculty of Arts. These programs explore the many cultural, historical, and political issues related to both Eastern and Western religions and to religion in comparative perspective. Majors and minors in World Religions are available, as well as honours and joint honours programs in Religious Studies. In addition, a distinctive strength of the Faculty’s offerings is the Major in Scriptures and Interpretations which allows for a concentration on a particular scriptural tradition (Jewish, Christian, or Hindu and Buddhist scriptures); the Minor in Scriptural Languages supports all these concentrations by providing intensive study of either Indo-Tibetan languages or Biblical Languages. Students frequently combine majors and minors in World Religions with a wide range of other B.A. concentrations, highlighting the importance of the rigorous study of religion to many other areas of inquiry.

11.6.1 Location

William and Henry Birks Building
3520 University Street
Montreal, Quebec H3A 2A7
Canada
Telephone: 514-398-4121
Website: www.mcgill.ca/religiousstudies

11.6.2 Administrative Officers

<table>
<thead>
<tr>
<th>Administrative Officers</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ellen B. Aitken; A.B.(Harv.), M.Div.(University of the South), Th.D.(Harv.)</td>
<td>Dean</td>
</tr>
<tr>
<td>Luvana Di Francesco</td>
<td>Administrative Officer</td>
</tr>
<tr>
<td>Francesca Maniaci</td>
<td>Administrative Assistant</td>
</tr>
<tr>
<td>Bruna Salhany</td>
<td>Administrative Affairs/Dean's Assistant</td>
</tr>
</tbody>
</table>

11.6.3 Academic Staff

Emeritus Professors

Gregory B. Baum; B.A.(McM.), M.A.(Ohio St.), D.Th.(Fribourg)
Maurice Boutin; B.A., B.A., B.A.(Montr.), D.Th.(Munich)
Robert C. Culley; B.D.(Knox, Tor.), M.A., Ph.D.(Tor.)
Joseph C. McLelland; B.A.(McM.), M.A.(Tor.), B.D.(Knox, Tor.), Ph.D.(Edin.), D.D.(Montr. Dio. Coll.; Knox, Tor.)
Donna R. Runnalls; B.A.(Br. Col.), B.D.(McG.), Ph.D.(Tor.)
Frederik Wisse; Ing.(Utrecht), B.A., B.D.(Calvin, Mich.), Ph.D.(Claremont)

Professors

Douglas B. Farrow; B.R.E.(Providence), M.Div.(Grace), M.Th.(Regent), Ph.D.(Lond.) (Christian Thought)
W.J. Torrance Kirby; B.A.(KCNS), M.A., D.Phil.(Oxf.) (Ecclesiastical History)
G.S. Oegema; B.A., Th.D.(Vrije, Amsterdam), M.A., Ph.D.(Free Univ., Berlin), Dr. Theol. Habil(Tübingen) (Biblical Studies)
Arvind Sharma; B.A.(Allahabad), M.A.(Syrac.), M.T.S., Ph.D.(Harv.) (Henry Birks Professor of Comparative Religion)
Katherine K. Young; B.A.(Vermont), M.A.(Chic.), Ph.D.(McG.) (James McGill Professor of Hinduism/Comparative Religion)

Associate Professors

Ellen B. Aitken; A.B.(Harv.), M.Div.(Univ. of the South), Th.D.(Harv.) (Early Christian History and Literature)
Gaëlle Fiasse; B.A., M.A., Ph.D.(Louvain) (Ethics and Religious Ethics) (joint appt. with Department of Philosophy)
G. Victor Hori; B.A.(York), M.A.(Tor.), Ph.D.(Stan.) (Japanese Religions)
Devesh Soneji; B.A.(Manit.), Ph.D.(McG.) (South Asian Religion)

Assistant Professors

Lara Braitstein; B.A., M.A., Ph.D.(McG.) (Indo-Tibetan Buddhism)
Daniel Cere; B.A., M.A.(McG.), Ph.D.(C'dia) (Religion, Ethics and Public Policy)

Faculty Lecturers

Jim Kanaris; B.A.(C'dia), M.A., Ph.D.(McG.) (Philosophy of Religion)
Fabian Udoh; B.Phil.(Institut de Philosophie, Kinshasa), S.T.B.(Pontificia Universitas Gregoriana), M.Phil.(Oxf.), Ph.D.(Duke) (New Testament Studies)
Numata Visiting Professor
Martin Adam; B.A.(Calg.), M.A.(Wat.), Ph.D.(McG.)

Adjunct Professors
Paul Jennings; B.A., M.A.(Tor.), B.Th.(McG.)
Elisabeth R. Jones; B.A.(Hons)(York, UK), M.Div., Th.M.(Vancouver School of Theology), Th.D.(cand.)(Univ. de Genève)
Philip Joudrey; B.A., M.Div.(Acad.), D.Min.(Andover Newton Theological School)
William Klempa; B.A.(Manit.), M.A.(Tor.), B.D., D.D.(Knox, Tor.), Ph.D.(Edin.)
T. Jinpa Langri; Dr. Div., B.A.(King's Coll., Lond.), Ph.D.(Camb.)
Lucille Marr; B.A., M.A., Ph.D.(Wat.)
Vanessa Sasson; B.A., M.A., Ph.D.(McG.)
John M. Simons; B.A.(Bishop's), S.T.B.(Trin. Coll., Tor.), Ph.D.(G'town) (PT)
John Vissers; B.A.(Tor.), M.Div.(Knox, Tor.), Th.M.(Princ.), Th.D.(Knox, Tor.) (PT)
Dale Woods; B.A.(Alta.), M.C.S.(Regent), M.Div.(Vancouver School of Theology ), D.Min.(Luther Seminary, Minneapolis)

Course Lecturers (2011-2012)
Éric Bellavance; B.A., M.A., Ph.D.(Montr.), Postdoctoral(McG.)
Cory Labrecque; B.Sc., M.A., Ph.D. Candidate(McG.)
Lei Kuan Lai; B.A.(University of the West in Rosemead), M.A.(Qu.), Ph.D. Candidate(McG.)
Lucille Marr; B.A., M.A., Ph.D.(Wat.)
R. Saraswati Sainath; B.Sc., M.A., M.Phil., Ph.D.(Madr.), Ph.D. Candidate(McG.)
Shital Sharma; B.Sc., M.A., Ph.D. Candidate(McG.)
Manjit Singh; B.A., M.A.(Delhi)
Carla Sulzbach; B.A.(Amster.), M.A., Ph.D.(McG.)

11.7 Overview of Degrees Offered

Degrees Offered by the Faculty

section 11.7.1: Bachelor of Arts in Religious Studies

section 11.7.3: Bachelor of Theology

section 11.7.2: Master of Divinity

11.7.1 Bachelor of Arts (B.A.) in Religious Studies

Honours concentration. Major concentration and Minor concentration in Religious Studies are offered in cooperation with the Faculty of Arts.

Admission is to the Faculty of Arts and all admission requirements and procedures, academic rules, and regulations of that Faculty apply to students in these programs.

For general information on B.A. Honours, Major concentrations, and Minor concentrations, consult the advisers. Check the Faculty’s website for a list of advisers. Detailed descriptions of the Religious Studies programs for Arts students are found in the Faculty of Arts > Religious Studies (RELG) section of this publication. Religious Studies B.A. Honours, Major, and Minor students may take any of the courses described in the programs except where otherwise indicated. For specific course information, consult the instructor.

Students who are interested in the Bachelor of Theology (B.Th.) (section 11.7.3: Bachelor of Theology (B.Th.)) or Master of Divinity (M.Div.) (section 11.7.2: Master of Divinity (M.Div.)) programs should refer to the appropriate section.

11.7.2 Master of Divinity (M.Div.)

Students who have completed a first degree prior to the B.Th. with a minimum CGPA of 2.7 are eligible to apply the B.Th. degree towards the Master of Divinity (M.Div.) degree conferred by the Theological Colleges. This degree requires, in addition to the B.Th. degree, successful involvement in integrative
seminars during the two B.Th. years and a year of professional pastoral study beyond the B.Th. This is called the “In-Ministry Year” (IMY) and is offered by the three affiliated Theological Colleges under the auspices of the Montreal School of Theology.

Students from the affiliated colleges may be eligible for bursary assistance if they are properly registered candidates for the ministry. Information about church requirements and the professional year should be sought from the principals of the appropriate colleges.

One biblical language, usually Greek, is required by some of the colleges. Ministerial candidates should consult with the College advisers regarding biblical language requirements.

Prospective candidates for ordination with a B.A. Honours or Major in Religious Studies and a CGPA of 3.3 (B+) may apply for the Master of Sacred Theology (S.T.M.) degree, followed upon completion by the professional year (IMY).

**Applicants for the M.Div. program** must apply to the McGill B.Th. program as well as to one of the Theological Colleges. College application forms should be requested from one of the following:

- The Montreal School of Theology (formerly the Joint Board of Theological Colleges)
  
  École théologique de Montréal (affiliée à l'Université McGill)
  
  3475 University Street
  
  Montreal, Quebec H3A 2A8

- Montreal Diocesan Theological College
  
  Séminaire Diocésain de Montréal
  
  3475 University Street
  
  Montreal, Quebec H3A 2A8

- The Presbyterian College
  
  Le Collège Presbytérien
  
  3495 University Street
  
  Montreal, Quebec H3A 2A8

- The United Theological College
  
  Le séminaire Uni
  
  3521 University Street
  
  Montreal, Quebec H3A 2A9

Prospective students should contact the Chair of the B.Th. Committee to discuss their qualifications, expectations, and objectives. Appointments can be made by emailing Professor Douglas Farrow at douglas.farrow@mcgill.ca.

### 11.7.3 Bachelor of Theology (B.Th.)

The main goals of the Bachelor of Theology (B.Th.) program are:

1. to offer academic instruction in the disciplines of theology within a university setting;
2. to contribute to preparation for ministry in the contemporary world by giving special attention to the Canadian and North American contexts, the Quebec context, and religious pluralism.

The Bachelor of Theology (B.Th.) may be taken as a first or second baccalaureate degree.

As a first degree (90 or 120 credits), it offers a more intensive study of Christianity than is available within the Bachelor of Arts (B.A.) programs, while also permitting the student to combine this specialization with other academic or professional interests, whether in Religious Studies or in other faculties and schools of the University.

As a second bachelor’s degree (60 credits), the Bachelor of Theology (B.Th.) program is designed primarily for those who intend to qualify for the ordained ministry in a Christian denomination, although here too, some students pursue the degree out of an interest in the academic study of theology for its own sake, or with a view to combining these studies with proficiency gained in other disciplines. The 60-credit program forms the core of the Bachelor of Theology (B.Th.) degree.

Those studying for the ordained ministry usually pursue the Bachelor of Theology (B.Th.) as part of a Master of Divinity (M.Div.) offered by one of the three Theological Colleges affiliated with McGill University in the Montreal School of Theology: Montreal Diocesan Theological College (Anglican Church of Canada), the Presbyterian College (Presbyterian Church in Canada), and United Theological College (United Church of Canada).

### 11.7.3.1 ATS Accreditation

The B.Th. program offered by McGill and the M.Div. program offered by the Theological Colleges are together fully accredited by the Association of Theological Schools in the U.S. and Canada (ATS).

### 11.7.3.2 Admission Requirements

The B.Th. program has three points of entry:
1. To enter the 120-credit degree program from outside Quebec, you must hold a high school diploma, unless you qualify as a mature student. A maximum of 60 credits from another institution of higher learning can be considered for transfer into the 120-credit program.

2. To enter the 90-credit first-degree program, you are expected to have completed the Diploma of Collegial Studies (DCS) from a Quebec CEGEP with a minimum average of cote R of 24, or the equivalent elsewhere. A maximum of 30 credits from another institution of higher learning can be considered for transfer into this program.

3. To enter the 60-credit program, you must have completed a B.A. or other Bachelor’s degree with a minimum CGPA of 2.7 (B-). No credits can be transferred from another institution of higher learning into the 60-credit program.

Any McGill student in good standing, with a minimum of 30 credits, may apply for transfer from their current degree program into the B.Th. program.

11.7.3.2.1 Mature Student Admissions Policy

Those who will be 23 years of age or older by September 1 of the year that they seek admission (or by January 1 for admission to the Winter term) and who lack the academic qualifications normally required for entry into the B.Th. program may apply as mature students for admission to a qualifying year in the B.Th. program.

Admitted students enrol in a qualifying year (30 credits) of designated Religious Studies and Arts courses (determined by the Chair of the B.Th. Committee). Those who, during the qualifying year, earn a CGPA of 2.5 to 2.9 (with no grade less than 60%) normally will be granted admission to the 120-credit B.Th. program. Credits completed during the qualifying year may be applied toward the 120 credit requirement.

Those who, during the qualifying year, earn a CGPA of at least 3.0 (having taken 30 credits, including at least two 300-level courses and with no grade less than 65%) normally will be granted admission to the 90-credit B.Th. program. Credits completed during the qualifying year may be applied toward the 90 credit requirement.

Students who, during the qualifying year, do not earn a minimum CGPA of 2.5 or who have grades less than 60%, may apply to retake courses, pending approval of the Chair of the B.Th. Committee.

11.7.3.3 Competence in English

Please note that for non-Canadian applicants whose mother tongue is not English, documented proof of competency in oral and written English by an appropriate examination is required. A Test of English as a Foreign Language (TOEFL) is required, with a minimum score of 577 for the paper-based version and of 90 for the Internet-based composite (iBT). For the iBT, a minimum score of 21 is also required in each individual component of reading, writing, listening, and speaking. Permanent residents of Canada may be required to submit a TOEFL score as well. All official documents must be sent to the Faculty of Religious Studies address given in section 11.7.3.4: Applying to the B.Th. Program.

11.7.3.4 Applying to the B.Th. Program

All applications must be made online at the McGill University website for prospective students: www.mcgill.ca/applying. The online application process should take about 20 minutes and a credit card is required for payment of the application fee. Once completed, the online application form may be printed for your own records.

Note: Owing to McGill University’s implementation of a comprehensive online application system, paper applications to the B.Th. Program can no longer be accepted. All applicants must apply online.

11.7.3.4.1 Required Documents

- Two letters of reference, at least one of which should be from an instructor in an academic institution previously attended.
- A personal statement, according to the directions in the application.
- Official transcript(s) of all previous post-secondary academic work.

A complete set of these required documents must be sent to the Faculty of Religious Studies (see address below).

If you are applying for admission to one of the Theological Colleges, another complete set of these required documents must also be sent to the College concerned.

Please note that your file will not be considered by the Admissions Committee until all the required documents have been received.

Mailing Address

By mail:
Bachelor of Theology Program
McGill University
Enrolment Services Documentation Centre
688 Sherbrooke Street West, Suite 760
Montreal, Quebec H3A 3R1
Canada

Drop-off or courier:
McGill University
Enrolment Services  
Service Point  
3415 McTavish Street  
Montreal, Quebec H3A 1Y1  
Canada

11.7.3.5 Application Deadlines

Applicants to the B.Th. program may be accepted into the Fall, Winter, or Summer term. The online application deadline is May 1 (June 15 for college affiliate applicants) for September admissions; November 1 for January admissions; and March 1 for May admissions. Please note that all required documents listed in section 11.7.3.4: Applying to the B.Th. Program must be received by the Faculty of Religious Studies prior to these deadlines in order for the applicant to be considered by the Admissions Committee.

11.7.3.6 Tuition Fees and Funding

Information concerning current tuition fees can be found at: www.mcgill.ca/student-accounts. Applicants for admission to one of the affiliated Colleges should contact the institution concerned for information regarding College-related fees.

11.7.3.7 Admissions Review Procedure

An unsuccessful applicant, or a Faculty of Religious Studies Council member acting on behalf of an unsuccessful applicant, who believes that not all factors having a bearing on the application have been fully considered may submit a request for a review of the decision.

The request must be made in writing and directed to the Chair of the B.Th. Admissions and Awards Committee. A CAD$40 certified cheque or money-order made payable to McGill University must accompany the request.

The request for review must include information in support of reconsideration, such as: a description of significant change in the applicant's circumstances since the initial consideration, correction of any missing or erroneous information in the application, or information that the applicant believes may have been overlooked when the original decision was made.

Requests for reconsideration must be received at McGill no more than two weeks after notification of refusal.

The review procedure will be carried out by the B.Th. Admissions and Awards Committee. Please note that the original admission decision will stand unless the Committee is persuaded that admissions standards have been misapplied or that an applicant’s academic record has been misapprehended.

Decisions on Special, Visiting, and Exchange applications are final; requests for reconsideration will not be considered.

11.7.3.8 Registration Procedures

Students register online at www.mcgill.ca/minerva.

Minerva provides web access to registration, class schedules, course descriptions, and address changes.

- Returning students must register via Minerva between March 29 and the first day of classes. After this period, a late registration fee will be applied.
- New students accepted from CEGEP should register via Minerva between June 9 and September 13, 2011. All other new students should register via Minerva between July 26 and September 13, 2011. After September 1, a late registration fee will be applied.
- All B.Th. students should consult their adviser before registration.

11.7.3.9 Withdrawal Procedures

Dropping or adding courses must be done via Minerva, prior to the deadline listed in this publication (see section 11.7.3.8: Registration Procedures). Permission of the adviser is required for all changes to course selection. In case of withdrawal from the University prior to the published course withdrawal deadline, you must withdraw from all courses via Minerva. In addition, you must contact the Chair of the Bachelor of Theology (B.Th.) Committee and complete the necessary withdrawal form.

11.7.3.10 Graduation Requirements

1. The B.Th. is either a 120-credit program (if you were admitted from outside Quebec and without a prior Bachelor's degree), a 90-credit program (if you were admitted on the basis of a Quebec D.C.S. or equivalent), or a 60-credit program (if you were admitted on the basis of a recognized Bachelor's degree).

2. Qualification for the degree must include Satisfactory Standing (a grade of C or better) in all required courses and the complementary courses specified in Year 3, and the accumulation of enough acceptable credits to make a total of either 60, 90, or 120 credits. It should be noted that if you take the B.Th. program as part of the M.Div. program, you need to maintain a minimum CGPA of 2.5 to be eligible for the M.Div. degree.

3. Normally, the program credits must be earned within five years from the date of entrance.
11.7.3.11 Course Selection
You are to seek the guidance of your adviser(s) when registering for courses. You must have your courses approved and your Minerva form signed by the Chair of the Bachelor of Theology (B.Th) Committee before classes begin. If you are affiliated with one of the Theological Colleges, your Minerva form must first be approved and signed by your College adviser.

11.7.3.12 Academic Standing and Course Loads
11.7.3.12.1 Satisfactory Standing
You enter the University in Satisfactory Standing and remain in this Standing unless your grade point average (GPA) or cumulative grade point average (CGPA) for any year drops below 2.00. The normal course load in any academic session is five courses per term (15 credits per term). If you have a high GPA (at least 3.00), you may take more than the normal five courses per term.

11.7.3.12.2 Probationary Standing
You are placed in Probationary Standing if either your CGPA or your term GPA falls between 1.50 and 1.99. (If you are a part-time student, your GPA is calculated on the basis of your last 9 credits.) While in Probationary Standing, you may take a minimum of 6 credits and a maximum of 12 credits per term.

While in Probationary Standing, you may return to Satisfactory Standing by completing 12 additional credits with a GPA of at least 2.50, or by completing 12 credits with a GPA and a CGPA of 2.00 or greater.

As a student in Probationary Standing, if you fail to achieve the levels of performance specified above, you will be placed in Unsatisfactory Standing, unless you obtain a GPA of 1.50-1.99 while continuing to have a CGPA of 2.00 or greater.

11.7.3.12.3 Unsatisfactory Standing
You are placed in Unsatisfactory Standing if you have a GPA of less than 1.50.
As a student in Unsatisfactory Standing, you will have to withdraw, or seek readmission as a probationary student with special permission from the B.Th. Committee and the Dean. If you are a student who is readmitted on Probationary Standing, you may have additional restrictions or conditions to meet over and above those required of students referred to above under “Probationary Standing”.

In the event that you are placed in Unsatisfactory Standing for a second time, you must withdraw permanently.

11.7.3.12.4 Incomplete Standing
If, in any year, your record shows a mark of K, K*, L, L*, or &&, you will have no GPA or CGPA calculated for that year, and your record will show “Standing Incomplete”. After completing the appropriate course requirements, your GPA and CGPA will be calculated and your Standing determined as described above.

If your Standing is still “Incomplete” at the time of registration for the next academic year, you must obtain a Letter of Permission to Register from the Chair of the B.Th. Committee.

11.7.3.13 Academic Achievement
Several designations are used to acknowledge the superior academic achievement of in-course and graduating students. These designations are awarded at the discretion of the Faculty.

Dean’s Honour List: to designate in-course students who have completed a minimum of 27 credits during regular session (14 credits for those registered for one term) and have attained a GPA placing them in the top 5% - 10% of their class.

11.7.3.13.1 Graduation Honours
Dean’s Honour List: For information on the designation of Dean’s Honour List awarded at graduation, see the University Regulations and Resources section of this publication.

Distinction: For information on the designation of Distinction awarded at graduation, see the University Regulations and Resources section of this publication.

Honours: to designate graduating students who have completed a minimum of 60 credits at McGill and have fulfilled the Honours course requirements with a CGPA of 3.20, or 3.50 for First Class Honours.

11.7.3.14 Evaluation
Competence in a course may be determined by examinations and/or essays, or by other means chosen by the instructor and approved by the Dean.

11.7.3.15 Bachelor of Theology (B.Th.) - Religious Studies (120 credits)
The Bachelor of Theology (B.Th.) degree requires 120 credits. Many students enter the program with advanced standing, and their credit requirement for the degree is adjusted accordingly.

All students must discuss their course selection with their program adviser.

The required and complementary course requirements below describe the program for students who enter in Year 1 (U1) with 30 credits of advanced standing based on a Quebec Diploma of Collegial Studies (DEC).

Students admitted directly from high school into U0 must consult their program adviser regarding appropriate courses for their first year of study.
Students admitted on the basis of a bachelor degree will have advanced standing and should consult their program adviser to determine any course equivalencies completed during their first degree and how these affect their program requirements for the Bachelor of Theology. Normally, these students start in Year 2 (U2) and follow the requirements below starting with Year 2.

The normal course load in the degree for full-time students is 15 credits per term, five 3-credit courses.

By permission of the Dean and the Chair of the B.Th. Committee, students may also enrol for courses at any university in the province of Quebec. For further information, see “Quebec Inter-University Transfer Agreement: McGill Students” in the “University Regulations and Information” section under “Registration”.

Professional and vocational courses (e.g., leading to ordination) are available through the In-Ministry Year (Master of Divinity (M.Div.)) upon the completion of the B.Th. degree.

First Year (U0) - Courses (30 credits)
Courses are to be selected in consultation with the student's program adviser for students admitted from high school into U0.

Year 1 (U1) - Required Courses (9 credits)
Students admitted to U1 on the basis of a Quebec Diploma of Collegial Studies (DEC) will take these required courses in their first year.

Students admitted to the B.Th. on the basis of a bachelor degree should consult their program adviser about their first year requirements, if any. By permission of the B.Th. Committee, students may substitute courses for any of the required courses if they have already taken them or similar courses for credit elsewhere.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELG 204</td>
<td>(3)</td>
<td>Judaism, Christianity and Islam</td>
</tr>
<tr>
<td>RELG 210</td>
<td>(3)</td>
<td>Jesus of Nazareth</td>
</tr>
<tr>
<td>RELG 334</td>
<td>(3)</td>
<td>Christian Thought and Culture</td>
</tr>
</tbody>
</table>

Year 1 (U1) - Elective Courses (21 credits)
To be determined in consultation with the B.Th. program adviser.

Year 2 (U2) - Required Courses (24 credits)
Students entering the B.Th. as a second degree program would normally take 60 credits and begin with Year 2 (U2) courses. These students should verify with their program adviser regarding course substitutions if they have completed similar courses elsewhere.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELG 302</td>
<td>(3)</td>
<td>Literature of Ancient Israel 1</td>
</tr>
<tr>
<td>RELG 303</td>
<td>(3)</td>
<td>Literature of Ancient Israel 2</td>
</tr>
<tr>
<td>RELG 311</td>
<td>(3)</td>
<td>New Testament Studies 1</td>
</tr>
<tr>
<td>RELG 312</td>
<td>(3)</td>
<td>New Testament Studies 2</td>
</tr>
<tr>
<td>RELG 322</td>
<td>(3)</td>
<td>The Church in History 1</td>
</tr>
<tr>
<td>RELG 323</td>
<td>(3)</td>
<td>The Church in History 2</td>
</tr>
<tr>
<td>RELG 333</td>
<td>(3)</td>
<td>Principles of Christian Theology 1</td>
</tr>
<tr>
<td>RELG 341</td>
<td>(3)</td>
<td>Introduction: Philosophy of Religion</td>
</tr>
</tbody>
</table>

Year 2 (U2) - Complementary Courses (6 credits)
To be chosen from among the 300- or 400-level courses offered in the B.Th. or B.A. Religious Studies programs (or RELG 280D1/-RELG 280D2) in consultation with the B.Th. program adviser.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELG 280D1</td>
<td>(3)</td>
<td>Elementary New Testament Greek</td>
</tr>
<tr>
<td>RELG 280D2</td>
<td>(3)</td>
<td>Elementary New Testament Greek</td>
</tr>
</tbody>
</table>

Year 3 (U3) - Required Courses (12 credits)
* Note: RELG 420 may be replaced with another course if recommended by the program adviser.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELG 420</td>
<td>(3)</td>
<td>Canadian Church History</td>
</tr>
<tr>
<td>RELG 434</td>
<td>(3)</td>
<td>Principles of Christian Theology 2</td>
</tr>
<tr>
<td>RELG 470</td>
<td>(3)</td>
<td>Theological Ethics</td>
</tr>
<tr>
<td>RELG 479</td>
<td>(3)</td>
<td>Christianity in Global Perspective</td>
</tr>
</tbody>
</table>
Year 3 (U3) - Complementary Courses (18 credits)

18 credits selected as follows:

One 3-credit course in a religious tradition other than Christianity, such as the courses listed below. Students who have previously completed a university-level course in world religions may replace this with another complementary course.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISLA 380</td>
<td>Islamic Philosophy and Theology</td>
</tr>
<tr>
<td>RELG 252</td>
<td>Hinduism and Buddhism</td>
</tr>
<tr>
<td>RELG 253</td>
<td>Religions of East Asia</td>
</tr>
<tr>
<td>RELG 306</td>
<td>Rabbinic Judaism</td>
</tr>
<tr>
<td>RELG 352</td>
<td>Japanese Religions</td>
</tr>
<tr>
<td>RELG 354</td>
<td>Chinese Religions</td>
</tr>
</tbody>
</table>

9 credits, one 3-credit course in each of the following areas:

Old Testament

3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELG 407</td>
<td>The Writings</td>
</tr>
<tr>
<td>RELG 408</td>
<td>The Prophets</td>
</tr>
</tbody>
</table>

New Testament

3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELG 411</td>
<td>New Testament Exegesis</td>
</tr>
<tr>
<td>RELG 482</td>
<td>Exegesis of Greek New Testament</td>
</tr>
</tbody>
</table>

Christian Theology

3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELG 330</td>
<td>Reformed Theology</td>
</tr>
<tr>
<td>RELG 336</td>
<td>Contemporary Theological Issues</td>
</tr>
<tr>
<td>RELG 399</td>
<td>Christian Spirituality</td>
</tr>
<tr>
<td>RELG 423</td>
<td>Reformation Thought</td>
</tr>
</tbody>
</table>

6 credits, to be chosen from among the 300- or 400-level courses offered in the B.Th. or B.A. Religious Studies programs (or RELG 280D1/-RELG 280D2) in consultation with the B.Th. program adviser.

11.7.3.16 Bachelor of Theology (B.Th.) - Honours Religious Studies (120 credits)

Students who have achieved a CGPA of 3.30 at the end of B.Th. Year 2 (U2) may apply to the B.Th. Committee for permission to enter the Honours program. They will be required to complete the normal requirements for the B.Th. degree and the honours courses RELG 494 and RELG 495 in the B.Th. Year 3 (U3) with a grade of B or better.

Year 3 (U3) - Required Courses - Honours (6 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>RELG 494</td>
<td>B.Th. Honours Seminar 1</td>
</tr>
<tr>
<td>RELG 495</td>
<td>B.Th. Honours Seminar 2</td>
</tr>
</tbody>
</table>
12 Faculty of Science

12.1 About the Faculty of Science

The Faculty of Science aims to be a leader in finding solutions critical to economic and human development, including key questions in the environmental sciences, new materials, and new technologies.

To help us achieve these goals, the Faculty has recruited the best scientific minds of this generation and is committed to ensuring that our undergraduate and graduate students receive an education that prepares them for a lifetime of accomplishment. Not only will these new recruits perform key research work, they will also take on equally important task: teaching the scientists and leaders of tomorrow. Over the next decade, many of these dynamic young academics will become world leaders in their disciplines. The process has already begun in fields as diverse as neuroscience, astrophysics, green chemistry, and earth system science.

Moreover, we are in the process of boldly transforming the way science is taught, with an increased emphasis on student/professor interaction and outreach. This new approach is reflected in the Faculty’s slogan, Learning Through Discovery, which emphasizes hands-on research at the undergraduate level and a more personal, one-on-one style between professors and students that traditionally did not begin until the graduate level. In 2005, the Faculty opened its Office for Undergraduate Research in Science and launched a new Freshman Interest Groups program, which allows groups of 10 to 15 freshman students to meet with a professor weekly.

The Faculty counts undergraduate students as one of its key strengths. The calibre of McGill’s undergraduates is very high – they boast the highest average entrance grades in Canada – and the Faculty understands that these brilliant young minds are the key to its future.

12.2 History of the Faculty of Science

The study of science at McGill goes back almost two centuries, when the lower campus was a rough and muddy cow pasture and the University struggled to establish itself. In 1855, the job of principal was given to a Nova-Scotia-born geologist, John William Dawson. When he arrived at McGill, Dawson laid out plans for walks and roads, and at his own expense arranged the planting of trees on the entrance avenue. More importantly, Dawson worked diligently to transform McGill from a poorly equipped provincial college into one of the best scientific institutions in the world. In 1882, he successfully lobbied for the creation of the Royal Society of Canada and brought international renown to McGill.

In the century and a half since Dawson steered the Faculty of Science onto the path of excellence, the Faculty has received numerous honours for its groundbreaking research, including Nobel prizes to seven Science alumni or Faculty members, as well as over 100 fellowships in the Royal Society of Canada. More importantly, McGill’s scientists have made the world a better place in which to live and have provided answers to the deepest mysteries facing humanity. Examples of McGill’s breakthroughs include the world’s first effective anti-retroviral HIV drug, the theory explaining photosynthesis, and the discovery of the fastest-spinning pulsar in the known universe.

McGill’s Faculty of Science has a long tradition of discovery and innovation that no other Canadian university, and only a handful of U.S. schools can match. Our long tradition of scientific leadership, and the illustrious roster of McGill researchers who changed the world – Sir Ernest Rutherford, Harriet Brooks, Ronald Melzak, Bernard Belleau, Leo Yaffe, and Vicky Kaspi, to name only a few – are key attributes.

The Faculty of Science’s roots are not only strong, but they display a deep commitment to excellence. Whether it’s bringing the best scientists in the world to our new Life Sciences Complex, or studying and suggesting ways in which we can help heal the Earth’s fragile ecosystem, the Faculty remains committed to Dawson’s vision of bringing the best to the world.

12.3 Programs and Teaching in Science

The Faculty of Science is committed to providing outstanding teaching and research facilities. The Faculty draws on its involvement in cutting-edge research to ensure teaching excellence at the undergraduate level. Professors who spearhead projects that change people’s understanding of the world teach regularly at the undergraduate level. Also, research-based independent study courses offer you the opportunity to contribute to your professors’ work, rather than just learn about it.

In an effort to supplement classroom learning with real life experience, the Faculty of Science has increased opportunities for undergraduate students to participate in fieldwork. All B.Sc. programs include an internship component. This is on top of the many undergraduate students the Faculty hires for Work Study projects and other research programs. As a McGill Science student, you have an opportunity to get involved in the structuring of your own education.

The Faculty of Science offers programs leading to the degree of Bachelor of Science (B.Sc.). Admission is selective; fulfillment of the minimum requirements does not guarantee acceptance. Admission criteria are described in the Undergraduate Admissions Guide, found at www.mcgill.ca/applying.

There are also two Diploma programs offered in Science. The Diploma in Environment, under McGill School of Environment > Diploma in Environment (30 credits), is a 30-credit program available to holders of a B.Sc. or B.A. or equivalent. The Diploma in Meteorology is a one-year program available to holders of a degree in Mathematics, Engineering, Physics and other appropriate disciplines who wish to qualify for a professional career in Meteorology;
see section 12.14.3: Atmospheric and Oceanic Sciences (ATOC) > section 12.14.3.11: Diploma in Meteorology (30 credits). All credits for these diplomas must be completed at McGill.

The Concurrent B.Sc. and B.Ed. program is designed to provide you with the opportunity to obtain both a B.Sc. and a B.Ed. after a minimum of 135 credits of study. For more information, see section 12.14.34: Science or Mathematics for Teachers and the Faculty of Education.

In addition to the Major program in Software Engineering offered in the Faculty of Science, there is also a Bachelor of Software Engineering program offered jointly with the Faculty of Engineering (refer to Faculty of Engineering > Department of Electrical and Computer Engineering).

Finally, the Faculties of Arts and Science jointly offer the Bachelor of Arts and Science (B.A. & Sc.), which is described under Bachelor of Arts & Science.

### 12.4 Revisions – Faculty of Science

#### Overview of Programs Offered

section 12.11.2: Minor Programs

section 12.14.2.5: Bachelor of Science (B.Sc.) - Major Anatomy and Cell Biology (67 credits)

section 12.14.2.6: Bachelor of Science (B.Sc.) - Honours Anatomy and Cell Biology (73 credits)

section 12.14.3.8: Bachelor of Science (B.Sc.) – Major Atmospheric Science and Physics (67 credits)

section 12.14.4.6: Bachelor of Science (B.Sc.) - Major Biochemistry (67 credits)

section 12.14.4.7: Bachelor of Science (B.Sc.) - Honours Biochemistry (76 credits)

section 12.14.5.4: Neurobiology Concentration

section 12.14.5.5: Biology (BIOL) Faculty

section 12.14.5.12: Biology (BIOL) Related Programs and Study Semesters

section 12.14.6.5: Bachelor of Science (B.Sc.) - Minor Biotechnology (for Science Students) (24 credits)

section 12.14.22.6: Bachelor of Science (B.Sc.) - Honours Microbiology and Immunology (73 credits)

section 12.14.25.3: Bachelor of Science (B.Sc.) - Minor Neuroscience (24 credits)

section 12.14.25.4: Bachelor of Science (B.Sc.) - Major Neuroscience (65 credits)

section 12.14.28.5: Bachelor of Science (B.Sc.) - Major Pharmacology (65 credits)

section 12.14.28.6: Bachelor of Science (B.Sc.) - Honours Pharmacology (74 credits)

#### About the Faculty of Science (Undergraduate)

- McGill’s second-largest faculty: 14 schools and departments, including the Redpath Museum, Canada’s oldest museum of natural history focusing on teaching, research, and outreach; 20 research centres and institutes.
Students: 4361 undergraduate, 906 graduate, and 131 postdoctoral researchers, for a total of 5398 students.

265 faculty members, including tenured and tenure-track professors.

Has produced seven Nobel laureates: five were Faculty of Science graduates, while two winners were Science faculty members.

Research budget of approximately $40 million, including $18 million from the Natural Sciences and Engineering Research Council of Canada, $5 million from Quebec and increasing annually. Approximately $150,000 generated annually per professor. Average of four papers per year.

Faculty renewal: aided by a pool of innovative government initiatives such as the Canada Foundation for Innovation and its Canada Research Chairs program, as well as the Quebec Tax Holiday for technical workers; the Faculty has recruited 160 new professors since 2000.

Canadian leader in Astrophysics and Cosmology, Climate Change and Extreme Weather, Green Chemistry, Life Sciences (developmental biology and cell information transfer), Earth Systems Science, Biodiversity and Conservation, Nanoscience and Social Neuroscience.

Lead faculty in the establishment of the multidisciplinary McGill School of Environment in 2000.

Offers top students an important Field Studies Program which takes students out of the classroom and into the world to conduct research in biodiversity, climate change, volcanology, geology, marine biology, and to work with native populations, governments, and NGOs in countries as wide-ranging as Africa, Panama, Barbados, the US, and Canada – all the way to Axel Heiberg Island, the University’s Arctic research station.

Established the Reginald Fessenden Professorships and Prizes in Science Innovation, the first such endowed program in Canada, to encourage and support the commercialization of research in Science conducted by world-class scholars.

McGill’s most multidisciplinary faculty, which conducts teaching and research in collaboration with many of the University’s other faculties, including Medicine, Engineering, Music, Arts, Education, Management, and the Montreal Neurological Institute in neuroengineering and brain imaging.

Spearheaded the largest and most recent construction project at McGill, the $120 million McGill Life Sciences Research Complex, consisting of the Francesco Bellini Building and Cancer Research Building, which are physically linked to the McIntyre Medical and the Stewart Biology buildings.

Established Canada’s first comprehensive Earth System Science Program in 2006-07, to study and research new forms of energy and gain a better understanding of climate change and natural hazards.

Innovative: the Tomlinson University Science Teaching Project conducts groundbreaking university-level science education research, and develops innovative and effective teaching methods for science instructors.

Inaugurated the Office for Undergraduate Research and the Science Undergraduate Research Awards to encourage top students to connect with professors during their degree program and pursue research projects in fields of interest, and established the Freshman Interest Group program, which provides an opportunity to meet other students, and help young students become more comfortable talking to and interacting with other professors.

12.5.1 Location

Dawson Hall
853 Sherbrooke Street West
Montreal, Quebec H3A 2T6
Canada

Telephone: 514-398-5442
Faculty website: www.mcgill.ca/science
Science Office for Undergraduate Student Advising (SOUSA): www.mcgill.ca/science/sousa

The Science Office for Undergraduate Student Advising (SOUSA) and the Office of the Director of Advising Services of the Faculty of Science are located in Dawson Hall, on the ground floor. SOUSA serves students in the B.Sc. and B.A. & Sc. degrees.

12.5.2 Administrative Officers

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Martin Grant; B.Sc.(PEI), M.Sc., Ph.D.(Tor.)</td>
<td>Dean</td>
</tr>
<tr>
<td>Laurie Hendren; B.Sc., M.Sc.(Qu.), Ph.D.(C’nell)</td>
<td>Associate Dean (Academic)</td>
</tr>
<tr>
<td>Nicole Allard; B.A.(W. Ont.), M.A.(Guelph), M.Ed.(McG.)</td>
<td>Director of Advising Services</td>
</tr>
<tr>
<td>Peter Grütter; Ph.D.(Basel) (James McGill Professor)</td>
<td>Associate Dean (Research and Graduate Education)</td>
</tr>
<tr>
<td>Pete Barry; B.Sc.(C’dia), M.Sc.(McG.)</td>
<td>Chief Academic Adviser</td>
</tr>
<tr>
<td>Josie D’Amico</td>
<td>Assistant to the Dean</td>
</tr>
</tbody>
</table>

12.5.3 Science Office for Undergraduate Student Advising (SOUSA)

The Science Office for Undergraduate Student Advising (SOUSA) provides ongoing advice and guidance on academic issues related to programs, degree requirements, registration, course change, withdrawal, deferred exams, supplemental exams, academic standing, inter- and intra-faculty transfer, year or term away, transfer credits, second programs, second degrees, and graduation.

Every student in the B.Sc. degree is assigned an adviser in SOUSA. The adviser’s name appears near the top of your Advising Transcript on Minerva. You can contact your adviser directly, or if you do not yet have a SOUSA adviser, at adviser.science@mcgill.ca.
SOUSA advisers provide assistance with degree planning and are a valuable referral source. They are a good place to start if you are not sure where to address your question. They also offer help managing academic situations during periods of personal, financial, or medical problems, by working with you to identify various possibilities and strategies for making informed decisions.

Special requests can be made, in writing, to the Director of Advising Services.

The Committee on Student Standing (CSS) will consider appeals of the Director of Advising Services’ decisions. For information about CSS, see the Director of Advising Services’ assistant.

### 12.6 Faculty Admission Requirements

For information about admission requirements for the B.Sc., please refer to the Undergraduate Admissions Guide, found at www.mcgill.ca/applying.

For information about inter-faculty transfers, refer to University Regulations and Information > Inter-Faculty Transfer as well as the relevant information posted on the SOUSA website at www.mcgill.ca/science/sousa/general/transfer.

### 12.7 Faculty Degree Requirements

Each student in the Faculty of Science must be aware of the Faculty regulations as stated in this publication and on the McGill, Science, and SOUSA websites.

While departmental and faculty advisers and staff are always available to give advice and guidance, the ultimate responsibility for completeness and correctness of course selection and registration, for compliance with, and completion of, program and degree requirements, and for the observance of regulations and deadlines, rests with you. It is your responsibility to seek guidance from the Science Office for Undergraduate Student Advising (SOUSA) if in any doubt; misunderstanding or misapprehension will not be accepted as cause for dispensation from any regulation, deadline, program, or degree requirement.

To be eligible for a B.Sc. degree, you must fulfill all Faculty and program requirements as indicated below:

<table>
<thead>
<tr>
<th>Faculty and program requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>section 12.7.1: Minimum Credit Requirement</td>
</tr>
<tr>
<td>section 12.7.2: Residency Requirement</td>
</tr>
</tbody>
</table>

University Regulations and Information > section 1.6.3: Grading and Grade Point Averages (GPA)

section 12.7.3: Time and Credit Limit for the Completion of the Degree

section 12.7.4: About Program Requirements

section 12.7.5: Course Requirements

### 12.7.1 Minimum Credit Requirement

The minimum credit requirement for your degree is determined at the time of acceptance and is specified in your letter of admission.

Students are normally admitted to a four-year degree requiring the completion of 120 credits.

#### 12.7.1.1 Advanced Standing

Advanced Standing of up to 30 credits may be granted to students who obtain satisfactory results in International Baccalaureate, French Baccalaureate, Advanced Levels, Advanced Placement tests, or the Diploma of Collegial Studies (DCS). Quebec students with a DCS in Science are granted 30 credits Advanced Standing and will have normally completed the equivalent of, and are therefore exempt from, the basic science courses in biology, chemistry, mathematics, and physics. Students with satisfactory results in International Baccalaureate, French Baccalaureate, Advanced Levels, and Advanced Placement tests may be exempt from some or all of the basic science courses. You will not be given additional credit toward your degree for any McGill course where the content overlapps substantially with any other course for which you have already received credit, such as for Advanced Standing results.

AP Examination results with a score of 4 or 5 must be declared by you at the time of initial registration at the University.

For more information about Advanced Standing, consult: www.mcgill.ca/students/transfercredit.

#### 12.7.1.2 Equivalencies for Non-Basic Science Courses

Note that equivalencies for some non-basic science courses, such as CHEM 212 and 222 and PSYC 204, are granted on a per-CEGEP basis. In some cases, a grade greater than the minimum passing grade may be required. For more information about equivalences for non-basic Science courses, please consult: www.mcgill.ca/students/transfercredit/prospective/cegep.

If the CEGEP and/or course is not listed on this website, you should refer to the SOUSA website and follow the instructions for advanced standing for students admitted to McGill from CEGEP: www.mcgill.ca/science/sousa/new_students/u1/orientation.
12.7.1.3 Readmission after Interruption of Studies for a Period of Five Consecutive Years or More

If you are readmitted after interrupting your studies for a period of five consecutive years or more, you may be required to complete a minimum of 60 credits and satisfy the requirements of a program. In this case, a new CGPA will be calculated. The Director of Advising Services, in consultation with the appropriate department, may approve a lower minimum for students who had completed 60 credits or more before interrupting their studies.

If you are readmitted after a period of absence, you are subject to the program and degree requirements in effect at the time of readmission. The Director of Advising Services, in consultation with the department, may approve exemption from any new requirements.

12.7.2 Residency Requirement

To obtain a B.Sc. degree, you must satisfy the following residency requirements: a minimum of 60 credits of courses used to satisfy the B.Sc. degree requirements must be taken and passed at McGill, exclusive of any courses completed as part of the Science Freshman Program; see section 12.14.1: B.Sc. Freshman Program. At least two-thirds of all departmental program requirements (Honours, Major, Core Science Components, or Minor) must normally be completed at McGill not including courses completed in a prior McGill degree. Exceptionally, students in major concentrations or interfaculty or honours programs who pursue an approved Study Away or Exchange program may, with prior approval from both their department and the Director of Advising Services, Faculty of Science, be exempted from the two-thirds rule. In addition, some departments may require that their students complete specific components of their program at McGill.

The residency requirement for diploma programs is 30 credits completed at McGill.

12.7.3 Time and Credit Limit for the Completion of the Degree

If you need 96 or fewer credits to complete your degree requirements, you are expected to complete your degree in no more than eight terms after your initial registration for the degree.

If you are a student in the Freshman Program, you become subject to these regulations one year after your initial registration. If you want to exceed this time limit, you must seek permission of the Director of Advising Services of the Faculty of Science.

If you are registered in the B.Sc., you are expected to complete the requirements of your program and your degree within 120 credits. You will receive credit for all courses (subject to department regulations) taken up to and including the semester in which you obtain 120 credits. If you want to remain at McGill beyond that semester, you must also seek permission of the Director of Advising Services, Science. Permission for exceeding the time and/or credit limits will normally be granted only for valid academic reasons, such as a change of program (subject to departmental approval) and part-time status. If permission is granted, you will receive credit only for required and complementary courses necessary to complete your program requirements.

12.7.4 About Program Requirements

The Faculty of Science offers a vast array of study and research opportunities at the undergraduate level, and it is very important that you familiarize yourself with all the alternatives open to you before deciding on a program of study. For an overview of programs offered in the B.Sc., see the Faculty of Science Programs of Study at: www.mcgill.ca/science/prospective/programs.

12.7.4.1 Liberal, Major, and Honours Programs

As a Science student, if you need 96 or fewer credits to complete your degree requirements, you are required to select your courses in each term with a view to timely completion of your degree and program requirements. You must register in one of the following types of departmental programs leading to the degree of Bachelor of Science:

12.7.4.1.1 Liberal Programs

Liberal programs provide students with the opportunity to study the core of one science discipline along with a breadth component from another area of science or from many other disciplines. In a liberal program, you must complete a Core Science Component (CSC) (45-50 credits), plus a Breadth Component (at least 18 credits). The requirements for the Core Science Components are given under departmental sections of this publication whenever applicable.

For the Breadth Component, you must complete one of the following:

- Minor Program (18-24 credits) – one of the programs listed in section 12.11.2: Minor Programs.
- Arts Minor or Major Concentration (18 or 36 credits) – one of the programs listed in section 12.11.6: Faculty of Arts Major and Minor Concentration Programs Available to Science Students.
- A Core Science Component in a second area (45-50 credits) – at least 24 credits must be distinct from the courses used to satisfy the primary Core Science Component. Note that a second Core Science Component can be selected from any of the Science groups.

12.7.4.1.2 Major Programs

Major programs are more specialized than liberal programs and are usually centred on a specific discipline or department. For prospective teachers, the Faculty also offers major programs that can constitute the Science component of the Concurrent B.Sc. and B.Ed. Program. For more information about this joint degree, refer to section 12.11.3: Concurrent B.Sc. and B.Ed. Program (Science or Mathematics for Teachers).

12.7.4.1.3 Honours Programs

Honours programs typically involve an even higher degree of specialization, often include supervised research, and require students to maintain a high academic standard. Although honours programs are specially designed to prepare you for graduate studies, graduates of the other degree programs may also...
be admissible to many graduate schools. If you intend to pursue graduate studies in your discipline, you should consult a departmental adviser regarding the appropriate selection of courses in your field.

12.7.4.2 Minor and Minor Concentration Programs

In addition to the liberal, major, and honours degree programs, as a student in the Faculty of Science, you may select a minor or approved minor concentration program. These are coherent sequences of courses in a given discipline or interdisciplinary area that may be taken in addition to the courses required for the degree program.

Science minors consist of up to 24 credits.

Arts minor concentrations consist of 18 credits.

A minimum of 18 new credits must be completed in the Minor or Minor concentration.

For a list of "Minor Programs", see section 12.11.2: Minor Programs; for minor concentrations that are approved for Science students, see section 12.11.6: Faculty of Arts Major and Minor Concentration Programs Available to Science Students.

12.7.4.3 Other Second Programs

In addition to a major or honours program, you may pursue a second major or honours program, or an Arts major concentration program. A minimum of 36 new credits must be completed in the second program.

12.7.4.4 Concurrent B.Sc. and B.Ed. Program

The Concurrent B.Sc. and B.Ed. program described in section 12.14.34: Science or Mathematics for Teachers is designed to give you the opportunity to obtain both a B.Sc. and a B.Ed. after a minimum of 135 credits of study.

As a Science student, you might want to enter the program by visiting the B.Sc. and B.Ed. website or contact Pete Barry, email: pete.barry@mcgill.ca.

12.7.4.5 Internship Year in Science (IYS)

All B.Sc programs can include an internship component. For more details, students should refer to section 12.13.1: Industrial Practicum (IP) and Internship Year in Science (IYS), section 12.11.5: Internship Programs – Industrial Practicum (IP) and Internship Year in Science (IYS), and www.mcgill.ca/science/internships-field/internships.

12.7.4.6 McGill School of Environment

The Faculty of Science is one of the four faculties in partnership with the McGill School of Environment. For more information, see the McGill School of Environment section of this publication.

12.7.5 Course Requirements

All required and complementary courses used to fulfill program requirements, including the basic Science requirements, must be completed with a grade of C or better. If you fail to obtain a satisfactory grade in a required course, you must either pass the supplemental examination in the course or do additional work for a supplementary grade, if these options are available, or repeat the course. Course substitution will be allowed only in special cases; you should consult your academic adviser.

Normally, you are permitted to repeat a failed course only once. (Failure is considered to be a grade of less than C or the administrative failures of J and KF.) If a required course is failed a second time, you must appeal to the Director of Advising Services for permission to take the course a third time. If permission is denied by the Director of Advising Services and/or by the Committee on Student Standing, on appeal, you must withdraw from the program.

If the failed course is a complementary course required by the program, you may choose to replace it with another appropriate complementary course. If you choose to substitute another complementary course for a complementary course in which a D was received, credit for the first course will still be given, but as an elective. If you repeat a required course in which a D was received, credit will be given only once.

Full details of the course requirements for all programs offered are given in each unit’s section together with the locations of departmental advisory offices, program directors, and telephone numbers should further information be required.

12.7.5.1 Course Overlap

You will not receive additional credit towards your degree for any course that overlaps in content with a course for which you have already received credit at McGill, at another university, at CEGEP, or for Advanced Placement, Advanced Level, International Baccalaureate, or French Baccalaureate results. It is your responsibility to consult the Science Office for Undergraduate Student Advising (SOUA) or the department offering the course as to whether or not credit can be obtained and to be aware of exclusion clauses specified in the course description in this publication. Please refer to the following website for specific information about advanced standing credits and McGill course exemptions: www.mcgill.ca/students/transfercredit.

Sometimes the same course is offered by two different departments. Such courses are called “double-prefix” courses. When such courses are offered simultaneously, you should take the course offered by the department in which you are obtaining your degree. For example, in the case of double-prefix courses CHEM XYZ and PHYS XYZ, Chemistry students take CHEM XYZ and the Physics students take PHYS XYZ. If a double-prefix course is offered by different departments in alternate years, you may take whichever course best fits your schedule.

Credit for computer and statistics courses offered by faculties other than Science requires the permission of the Director of Advising Services and will be granted only under exceptional circumstances.
Credit for statistics courses will be given with the following stipulations:

- Credit will be given for ONLY ONE of the following introductory statistics courses: AEMA 310, BIOL 373, ECON 227D1/D2, ECON 257D1/D2, GEOG 202, MATH 203, MGCR 271, MGCR 273, PSYC 204, SOCI 350.
- Credit will be given for ONLY ONE of the following intermediate statistics courses: AEMA 411, ECON 227D1/D2, ECON 257D1/D2, GEOG 351, MATH 204, PSYC 305, SOCI 461 with the exception that you may receive credit for both PSYC 305 and ECON 227D1/D2 or ECON 257D1/D2.
- If you have already received credit for MATH 324 or MATH 357, you will NOT receive credit for any of the following: AEMA 310, AEMA 411, BIOL 373, ECON 227D1/D2, ECON 257D1/D2, GEOG 202, GEOG 351, MATH 203, MATH 204, MGCR 271, MGCR 273, PSYC 204, PSYC 305, SOCI 350.
- For 500-level statistics courses not listed above, you must consult a program adviser to ensure that no significant overlap exists. Where such overlap exists with a course for which you have already received credit, credit for the 500-level course will not be allowed.
- Credit for statistics courses offered by faculties other than Arts and Science requires the permission of the Director of Advising Services, Science, except for students in the B.Sc. Major in Environment, who may take required statistics courses in the Faculty of Agricultural and Environmental Sciences necessary to satisfy their program requirements.
- PSYC 204 may not be taken if a grade of 75% or better was received in an equivalent course completed at CEGEP.

12.7.5.2 Courses Outside the Faculties of Arts and Science

As a student in the Faculty of Science, you should consult the statement of regulations for taking courses outside the Faculties of Arts and of Science (see below). A list of approved/not approved courses in other faculties is posted on the SOUSA website (www.mcgill.ca/science/sousa/continuing_students/bsc/outside). You may take courses on the approved list and may not, under any circumstances, take courses on the not-approved list for credit. Requests for permission to take courses that are not on either list should be addressed to the Director of Advising Services.

The regulations are as follows:

- You may take only 6 credits per year, up to 18 credits in all, of courses outside the Faculties of Arts and of Science.
- For a list of courses considered to be “in the Faculty of Science”, or “in the Faculty of Arts”, consult the PDF version of this publication available at www.mcgill.ca/undergraduate. Go to Courses and look under Faculty of Science or Faculty of Arts.
- Courses in other faculties that are considered as taught by Science (e.g., BIOT, EXMD, and PHAR) are so designated under the Faculty of Science section of this publication.
- Courses in Music are considered as outside the Faculties of Arts and of Science, except MUAR courses, which are considered as Arts courses.
- All courses listed in the Religious Studies section (RELG) are considered as courses in Arts and Science except for courses restricted to B.Th. or S.T.M. students and courses that require permission of the Chair of the B.Th. Committee.
- Students should consult the list of restricted courses outside of the Faculties of Arts and of Science on the SOUSA website (www.mcgill.ca/science/sousa).
- You must have the necessary prerequisites and permission of the instructor for such courses.
- Credit for computer and statistics courses offered by faculties other than Arts and Science requires the permission of the Director of Advising Services and will be granted only under exceptional circumstances.
- If you use Minerva to register for a course, and it exceeds the specified limitations or it is not approved, the course will be flagged for no credit after the course change period.
- Credit will not be given for any “how to” courses offered by other faculties that are intended to provide you with only practical or professional training in specific applied areas. Examples include courses that teach the use of certain computer packages (databases, spreadsheets, etc.) or computer languages (SQL, COBOL, FORTRAN, etc.), machine shop or electronic shop courses, technical drawing courses, and professional practice courses.
- As a student in the McGill School of Environment, you may exceed the 18-credit limit for courses outside the Faculties of Arts and of Science, provided that all such courses are necessary to complete your program of study.
- As a student in the Major in Software Engineering, you may exceed the 18-credit limit for courses outside the Faculties of Arts and of Science, provided that all such courses are necessary to complete your program of study.
- As a student in the B.Sc. Liberal Program taking a Major Concentration in Music, you may exceed the 18-credit limit for courses outside the Faculties of Arts and of Science, provided that all such courses are necessary to complete your program of study, up to a maximum of 36 Music credits.
- If you registered in the Minor in Management before September 2007, you may take 21 credits of courses outside the Faculties of Arts and of Science.
- The 18-credit limit applies to students taking the Minor in Nutrition: equivalent courses in Science should be taken instead of courses in the Faculty of Agricultural and Environmental Sciences.

12.7.5.3 Correspondence, Distance Education or Web-based Courses

As a Science student, you may obtain transfer credit for correspondence, distance education, or web-based courses if you receive prior approval from the appropriate McGill department for the course content and prior approval from the Director of Advising Services, Science, for the method of delivery and evaluation. Courses taught through distance education from institutions other than McGill will only be considered for transfer credits under the following conditions:

- The course is given by a government-accredited, degree-granting institution acceptable to McGill.
- The course counts for credit towards degrees granted at the institution giving the course.
- The combined total of regular course credits and distance education course credits do not exceed the permitted maximum number of credits per term according to Faculty regulations.
• Courses taught through distance education may not be used to complete program requirements, except on an individual basis when serious, documented circumstances warrant it.

12.7.5.4 Courses in English as a Second Language (ESL)
ESL courses are only open to students whose primary language is not English and who have studied for fewer than five years in English-language secondary institutions. As a student in the B.Sc., you may take a maximum of 12 credits, including academic writing courses for non-anglophones, from the list of ESL courses published at www.mcgill.ca/science/sousa/continuing_students/bsc/inside.

12.7.5.5 Registration for First-Year Seminars
Registration for First-Year Seminars is limited to students in their first year of study at McGill, i.e., newly admitted students in U0 or U1. These courses are designed to provide a closer interaction with professors and better working relations with peers than is available in large introductory courses. These seminars endeavour to teach the latest scholarly developments and expose participants to advanced research methods. Registration is on a first-come, first-served basis. The maximum number of students in any seminar is 25, although some are limited to even fewer than that.

You may take only one First-Year Seminar. If you register for more than one, you will be obliged to withdraw from all but one of them. Please consult the departmental listings for course descriptions and availability.

CHEM 199 FYS: Why Chemistry?
EPSC 199 FYS: Earth & Planetary Exploration
PSYC 199 FYS: Mind-Body Medicine
PSYT 199 FYS: Mental Illness and the Brain

The First-Year Seminars offered by the Faculty of Arts are also open to Science students. For a complete listing, please consult Faculty of Arts > First-Year Seminars.

12.7.5.6 Course Credit Weight
The credit assigned to a particular course should reflect the amount of effort it demands of you. Normally, one credit will represent three hours total work per week for one term – including a combination of lecture hours, other contact hours, such as laboratory periods, tutorials, and problem periods, as well as personal study time.

12.8 Advising
If you need 96 or fewer credits to complete your degree requirements, you must consult an academic adviser in your proposed department of study to obtain advice and approval of your course selection. Quebec students with a Diploma of Collegial Studies in Science have normally taken the equivalent of, and are therefore exempt from, the 100-level basic science courses in Biology, Chemistry, Mathematics, and Physics. Such students may also be exempt from some 200-level courses. If you are a student with satisfactory results in International Baccalaureate, French Baccalaureate, Advanced Levels, and Advanced Placement tests, you may also be exempt from some or all of the Science Freshman courses. To facilitate program planning, you must present your transcript(s) and letter of admission. For a detailed description of advising and registration procedures, you should refer to University Regulations and Information > Registration, to University Regulations and Information > Undergraduate Advising, and to the website for newly admitted undergraduate students at www.mcgill.ca/newstudents, as well as to the information posted on the SOUSA website at www.mcgill.ca/science/sousa/new_students/u1, and the departmental websites.

If you need 97-120 credits to complete your degree requirements, you will normally be registered in a Freshman program until you complete your first year. You must consult a SOUSA adviser in the Science Office for Undergraduate Student Advising to obtain advice and approval of your course selection. For a detailed description of advising and registration procedures as a Freshman student, you should refer to the website for newly admitted undergraduate students at www.mcgill.ca/newstudents, and to the information on the SOUSA website at www.mcgill.ca/science/sousa/new_students/u0.

Advising for all returning students takes place in March for the upcoming academic year. For more information, you should refer to the information on the SOUSA website, www.mcgill.ca/science/sousa/continuing_students.

12.9 Freshman Interest Groups
Freshman Interest Groups (FIGs) are groups of approximately 15 U0 students and U1 students in their first semester, in the B.Sc. or B.A. & Sc., led by a professor in the Faculty of Science or Faculty of Medicine and an upper-year undergraduate student. They meet once every two weeks in the Fall semester to discuss a wide range of topics, such as science in the news, program choices, undergraduate research opportunities, or just aspects of life in Montreal. The purpose of a FIG is to ease the transition to McGill and Montreal and to provide you an opportunity to interact with a professor and with other U0 students in a small group. FIGs carry no credit and there is no charge. For more information and to see how to register, refer to www.mcgill.ca/science/student/fig.
12.10 Examinations

Students should refer to University Regulations and Information > Examinations: General Information in this publication for information about final examinations and deferred examinations. Note that for the Faculty of Science, Final Examinations: University Regulations Concerning Final Examinations under University Regulations and Information, applies to courses up to and including the 500 level.

The exam schedules are posted on the McGill website, www.mcgill.ca/students/exams, normally one month after the start of classes for the Tentative Exam Schedule, and two months after the start of classes for the Final Examination Schedule.

Students are warned not to make travel arrangements to leave Montreal prior to the scheduled end of any examination period.

12.11 Overview of Programs Offered

Science Program Groups, section 12.11.1: Bachelor of Science Program Groups, which may include Liberal Program – Core Science Components, Major Programs, Joint Major Programs, Honours Programs, and Joint Honours Programs

Minor Programs, section 12.11.2: Minor Programs

Concurrent B.Sc. and B.Ed. Program, section 12.7.4.4: Concurrent B.Sc. and B.Ed. Program

Bachelor of Arts and Science, section 12.11.4: Bachelor of Arts and Science

Internship Year in Science (IYS), section 12.7.4.5: Internship Year in Science (IYS)

Science Internships and Field Studies, section 12.13: Science Internships and Field Studies

Faculty of Arts Major and Minor Concentration Programs Available to Science Students, section 12.11.6: Faculty of Arts Major and Minor Concentration Programs Available to Science Students

12.11.1 Bachelor of Science Program Groups

Science students admitted after September 2009 are limited to choosing liberal, majors or honours programs within the Science group to which they were admitted, but may continue to choose freely from all available minor programs. Students pursuing a Liberal Science Program – Core Science Component (CSC) may also select a second CSC from any group. See section 12.7.4.1: Liberal, Major, and Honours Programs.

The groups within the B.Sc. are:

- Biomedical, Biomedical & Life Sciences
- Microbiology & Immunology
- Neuroscience
- Physical, Earth, Math & Computer Science
- Concurrent B.Sc./B.Ed.

For a list of specific programs in each group, see:

- section 12.11.1.1: Biological, Biomedical & Life Sciences Group
- section 12.11.1.2: Microbiology and Immunology Group
- section 12.11.1.3: Neuroscience Group
- section 12.11.1.4: Physical, Earth, Math & Computer Science Group
- section 12.11.3: Concurrent B.Sc. and B.Ed. Program (Science or Mathematics for Teachers)

To change to a major or honours program in another Science group, students must make an Intra-Faculty Transfer application.


12.11.1.1 Biological, Biomedical & Life Sciences Group

12.11.1.1.1 Liberal Program – Core Science Components

- Anatomy and Cell Biology, section 12.14.2.4: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Anatomy and Cell Biology (48 credits)
- Biochemistry, section 12.14.4.5: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Biochemistry (47 credits)
- Biology, section 12.14.5.7: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Biology (47 credits)
- Physiology, section 12.14.30.4: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Physiology (50 credits)
Psychology, *section 12.14.32.6: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Psychology (45 credits)*

### 12.11.1.2 Major Programs

- Anatomy and Cell Biology, *section 12.14.2.5: Bachelor of Science (B.Sc.) - Major Anatomy and Cell Biology (67 credits)*
- Biochemistry, *section 12.14.4.6: Bachelor of Science (B.Sc.) - Major Biochemistry (67 credits)*
- Biology, *section 12.14.5.8: Bachelor of Science (B.Sc.) - Major Biology (59 credits)*
- Biology – Quantitative Biology, *section 12.14.5.9: Bachelor of Science (B.Sc.) - Major Biology - Quantitative Biology (72 credits)*
- Pharmacology – application required, see departmental section for information, *section 12.14.28.5: Bachelor of Science (B.Sc.) - Major Pharmacology (65 credits)*
- Physiology, *section 12.14.30.5: Bachelor of Science (B.Sc.) - Major Physiology (65 credits)*
- Psychology, *section 12.14.32.7: Bachelor of Science (B.Sc.) - Major Psychology (54 credits)*

### 12.11.1.3 Joint Major Programs

- Biology and Mathematics, *section 12.14.5.10: Bachelor of Science (B.Sc.) - Major Biology and Mathematics (76 credits)*
- Computer Science and Biology, *section 12.14.9.11: Bachelor of Science (B.Sc.) - Major Computer Science and Biology (73 credits)*
- Physiology and Mathematics, *section 12.14.30.6: Bachelor of Science (B.Sc.) - Major Physiology and Mathematics (77 credits)*
- Physiology and Physics, *section 12.14.30.7: Bachelor of Science (B.Sc.) - Major Physiology and Physics (80 credits)*

### 12.11.1.4 Honours Programs

- Anatomy and Cell Biology, *section 12.14.2.6: Bachelor of Science (B.Sc.) - Honours Anatomy and Cell Biology (73 credits)*
- Biochemistry, *section 12.14.4.7: Bachelor of Science (B.Sc.) - Honours Biochemistry (76 credits)*
- Biology, *section 12.14.5.11: Bachelor of Science (B.Sc.) - Honours Biology (75 credits)*
- Pharmacology - application required, see departmental section for information, *section 12.14.28.6: Bachelor of Science (B.Sc.) - Honours Pharmacology (74 credits)*
- Physiology, *section 12.14.30.8: Bachelor of Science (B.Sc.) - Honours Physiology (75 credits)*
- Psychology, *section 12.14.32.8: Bachelor of Science (B.Sc.) - Honours Psychology (60 credits)*

### 12.11.1.2 Microbiology and Immunology Group

#### 12.11.1.2.1 Liberal Program – Core Science Component

- Microbiology and Immunology – application required, see *section 12.14.22: Microbiology and Immunology (MIMM)* for information, and *section 12.14.22.4: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Microbiology and Immunology (48 credits)*

#### 12.11.1.2.2 Major Program

- Microbiology and Immunology – application required, see *section 12.14.22: Microbiology and Immunology (MIMM)* for information, and *section 12.14.22.5: Bachelor of Science (B.Sc.) - Major Microbiology and Immunology (67 credits)*

#### 12.11.1.2.3 Honours Programs

- Immunology (Interdepartmental) – application required, see *section 12.14.17: Immunology Interdepartmental Honours* for information, and *section 12.14.17.3: Bachelor of Science (B.Sc.) - Honours Immunology (Interdepartmental) (75 credits)*
- Microbiology and Immunology – application required, see *section 12.14.22: Microbiology and Immunology (MIMM)* for information, and *section 12.14.22.6: Bachelor of Science (B.Sc.) - Honours Microbiology and Immunology (73 credits)*

### 12.11.1.3 Neuroscience Group

#### 12.11.1.3.1 Major Program

- Neuroscience - application required, see *section 12.14.25: Neuroscience* for information, and *section 12.14.25.4: Bachelor of Science (B.Sc.) - Major Neuroscience (65 credits)*

### 12.11.1.4 Physical, Earth, Math & Computer Science Group

#### 12.11.1.4.1 Liberal Program – Core Science Components

- Atmospheric Science, *section 12.14.3.5: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Atmospheric and Oceanic Sciences (46 credits)*
- Chemistry: Biological Option, *section 12.14.7.7: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Chemistry - Biological (47 credits)*
• Chemistry: General Option, section 12.14.7.8: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Chemistry - General (49 credits)
• Chemistry: Physical Option, section 12.14.7.9: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Chemistry - Physical (47 credits)
• Computer Science, section 12.14.9.8: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Computer Science (45 credits)
• Earth and Planetary Sciences, section 12.14.10.6: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Earth and Planetary Sciences (45 credits)
• Geography, section 12.14.16.7: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Geography (49 credits)
• Mathematics, section 12.14.21.7: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Mathematics (45 credits)
• Physics, section 12.14.29.8: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Physics (48 credits)
• Software Engineering, section 12.14.9.9: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Software Engineering (49 credits)
• Statistics, section 12.14.21.8: Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Statistics (45 credits)

12.11.1.42 Major Programs

• Atmospheric Science, section 12.14.3.6: Bachelor of Science (B.Sc.) - Major Atmospheric Science (61 credits)
• Atmospheric Science (Atmospheric Chemistry option), section 12.14.3.7: Bachelor of Science (B.Sc.) - Major Atmospheric Science - Atmospheric Chemistry (61 credits)
• Chemistry, section 12.14.7.10: Bachelor of Science (B.Sc.) - Major Chemistry (59 credits)
• Chemistry (Bio-organic option), section 12.14.7.12: Bachelor of Science (B.Sc.) - Major Chemistry - Bio-organic (63 credits)
• Chemistry (Atmosphere and Environment option), section 12.14.7.11: Bachelor of Science (B.Sc.) - Major Chemistry - Atmosphere and Environment (63 credits)
• Chemistry (Materials option), section 12.14.7.13: Bachelor of Science (B.Sc.) - Major Chemistry - Materials (62 credits)
• Computer Science, section 12.14.9.10: Bachelor of Science (B.Sc.) - Major Computer Science (63 credits)
• Computer Science (Computer Games option), section 12.14.9.12: Bachelor of Science (B.Sc.) - Major Computer Science - Computer Games (67 credits)
• Earth and Planetary Sciences, section 12.14.10.7: Bachelor of Science (B.Sc.) - Major Earth and Planetary Sciences (66 credits)
• Earth System Science, section 12.14.11.3: Bachelor of Science (B.Sc.) - Major Earth System Science (57 credits)
• Environment (Atmospheric Environment and Air Quality domain) - see McGill School of Environment > Bachelor of Science (B.Sc.) - Major Environment - Atmospheric Environment and Air Quality (60 credits)
• Environment (Biodiversity and Conservation domain) - see McGill School of Environment > Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) - Major Environment - Biodiversity and Conservation (63 credits)
• Environment (Earth Sciences and Economics domain) - see McGill School of Environment > Bachelor of Science (B.Sc.) - Major Environment - Earth Sciences and Economics (66 credits)
• Environment (Ecological Determinants of Health domain - Cellular) - see McGill School of Environment > Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) - Major Environment - Ecological Determinants of Health - Cellular (63 credits)
• Environment (Ecological Determinants of Health domain - Population) - see McGill School of Environment > Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) - Major Environment - Ecological Determinants of Health - Population (63 credits)
• Environment (Environmetrics domain) - see McGill School of Environment > Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) - Major Environment - Environmetrics (63 credits)
• Environment (Food Production and Environment domain) - see McGill School of Environment > Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) - Major Environment - Food Production and Environment (63 credits)
• Environment (Land Surface Processes and Environmental Change domain) - see McGill School of Environment > Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) - Major Environment - Land Surface Processes and Environmental Change (63 credits)
• Environment (Renewable Resource Management domain) - see McGill School of Environment > Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) - Major Environment - Renewable Resource Management (63 credits)
• Environment (Water Environments and Ecosystems domain - Biological) - see McGill School of Environment > Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) - Major Environment - Water Environments and Ecosystems - Biological (60 credits)
• Environment (Water Environments and Ecosystems domain - Physical) - see McGill School of Environment > Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) - Major Environment - Water Environments and Ecosystems - Physical (63 credits)
• Geography, section 12.14.16.8: Bachelor of Science (B.Sc.) - Major Geography (58 credits)
• Mathematics, section 12.14.21.9: Bachelor of Science (B.Sc.) - Major Mathematics (54 credits)
• Physics, section 12.14.29.9: Bachelor of Science (B.Sc.) - Major Physics (60 credits)
• Software Engineering, section 12.14.9.13: Bachelor of Science (B.Sc.) - Major Software Engineering (63 credits)

12.11.1.43 Joint Major Programs

• Atmospheric Science and Physics, section 12.14.3.8: Bachelor of Science (B.Sc.) – Major Atmospheric Science and Physics (67 credits)
- Biology and Mathematics, section 12.14.5.10: Bachelor of Science (B.Sc.) - Major Biology and Mathematics (76 credits)
- Computer Science and Biology, section 12.14.9.11: Bachelor of Science (B.Sc.) - Major Computer Science and Biology (73 credits)
- Statistics and Computer Science - see Physics, section 12.14.21.11: Bachelor of Science (B.Sc.) - Major Statistics and Computer Science (72 credits)
- Physics and Computer Science, section 12.14.29.11: Bachelor of Science (B.Sc.) - Major Physics and Computer Science (66 credits)
- Physics and Geophysics, section 12.14.29.10: Bachelor of Science (B.Sc.) - Major Physics and Geophysics (69 credits)
- Physiology and Mathematics, section 12.14.30.6: Bachelor of Science (B.Sc.) - Major Physiology and Mathematics (77 credits)
- Physiology and Physics, section 12.14.30.7: Bachelor of Science (B.Sc.) - Major Physiology and Physics (80 credits)
- Statistics and Computer Science, section 12.14.21.11: Bachelor of Science (B.Sc.) - Major Statistics and Computer Science (72 credits)

12.11.1.44 Honours Programs

- Applied Mathematics, section 12.14.21.13: Bachelor of Science (B.Sc.) - Honours Applied Mathematics (60 credits)
- Atmospheric Science, section 12.14.3.9: Bachelor of Science (B.Sc.) - Honours Atmospheric Science (70 credits)
- Atmospheric Science (Atmospheric Chemistry option), section 12.14.3.10: Bachelor of Science (B.Sc.) - Honours Atmospheric Science - Atmospheric Chemistry (70 credits)
- Chemistry, section 12.14.7.14: Bachelor of Science (B.Sc.) - Honours Chemistry (71 credits)
- Chemistry (Bio-organic option), section 12.14.7.15: Bachelor of Science (B.Sc.) - Honours Chemistry - Bio-organic (75 credits)
- Chemistry (Atmosphere and Environment option), section 12.14.7.16: Bachelor of Science (B.Sc.) - Honours Chemistry - Atmosphere and Environment (75 credits)
- Chemistry (Materials), section 12.14.7.17: Bachelor of Science (B.Sc.) - Honours Chemistry - Materials (74 credits)
- Computer Science, section 12.14.9.14: Bachelor of Science (B.Sc.) - Honours Computer Science (75 credits)
- Earth Sciences, section 12.14.10.8: Bachelor of Science (B.Sc.) - Honours Earth Sciences (75 credits)
- Environment, section 7.13.2: Bachelor of Science (B.Sc.) - Honours Environment (72 credits)
- Planetary Sciences, section 12.14.10.9: Bachelor of Science (B.Sc.) - Honours Planetary Sciences (81 credits)
- Geography, section 12.14.16.9: Bachelor of Science (B.Sc.) - Honours Geography (66 credits)
- Mathematics, section 12.14.21.12: Bachelor of Science (B.Sc.) - Honours Mathematics (60 credits)
- Physics, section 12.14.29.12: Bachelor of Science (B.Sc.) - Honours Physics (78 credits)
- Software Engineering, section 12.14.9.15: Bachelor of Science (B.Sc.) - Honours Software Engineering (75 credits)

12.11.1.45 Joint Honours Programs

- Mathematics and Computer Science, section 12.14.21.15: Bachelor of Science (B.Sc.) - Honours Mathematics and Computer Science (75 credits)
- Mathematics and Physics, section 12.14.29.13: Bachelor of Science (B.Sc.) - Honours Mathematics and Physics (81 credits)
- Physics and Chemistry, section 12.14.29.14: Bachelor of Science (B.Sc.) - Honours Physics and Chemistry (80 credits)

12.11.2 Minor Programs

Revision, August 2011. Start of revision.

Atmospheric Science, section 12.14.3.4: Bachelor of Science (B.Sc.) - Minor Atmospheric Science (18 credits)
Biology, section 12.14.5.6: Bachelor of Science (B.Sc.) - Minor Biology (25 credits)
Biotechnology, section 12.14.6.5: Bachelor of Science (B.Sc.) - Minor Biotechnology (for Science Students) (24 credits)
Chemical Engineering, section 12.14.7.6: Bachelor of Science (B.Sc.) - Minor Chemical Engineering (24 credits)
Chemistry, section 12.14.7.5: Bachelor of Science (B.Sc.) - Minor Chemistry (18 credits)
Computer Science, section 12.14.9.7: Bachelor of Science (B.Sc.) - Minor Computer Science (24 credits)
Education for Science Students, section 12.14.34.4: Bachelor of Science (B.Sc.) - Minor Education for Science Students (18 credits)
Electrical Engineering, section 12.14.29.7: Bachelor of Science (B.Sc.) - Minor Electrical Engineering (24 credits)
Environment – see McGill School of Environment > Bachelor of Science (Agricultural and Environmental Sciences) (B.Sc.(Ag.Env.Sc.)) or Bachelor of Science (B.Sc.) - Minor Environment (18 credits)
Field Study – see Field Studies and Study Abroad > Field Studies - Minor Field Studies (18 credits)

Finance for Non-Management Students – see Desautels Faculty of Management > Minor Finance (For Non-Management Students) (18 credits)

General Science, section 12.14.15.3: Bachelor of Science (B.Sc.) - Minor General Science (18 credits)

Geochemistry, section 12.14.10.5: Bachelor of Science (B.Sc.) - Minor Geochemistry (18 credits)

Geography, section 12.14.16.5: Bachelor of Science (B.Sc.) - Minor Geography (18 credits)

Geographic Information Systems, section 12.14.16.6: Bachelor of Science (B.Sc.) - Minor Geographic Information Systems (18 credits)

Geology, section 12.14.10.4: Bachelor of Science (B.Sc.) - Minor Geology (18 credits) (previously named Earth and Planetary Sciences)

Human Nutrition – see Faculty of Agricultural and Environmental Sciences > School of Dietetics and Human Nutrition > Minor Human Nutrition (24 credits)

Interdisciplinary Life Sciences, section 12.14.18.3: Bachelor of Science (B.Sc.) - Minor Interdisciplinary Life Sciences (24 credits)

Kinesiology, section 12.14.19.3: Bachelor of Science (B.Sc.) - Minor Kinesiology (24 credits)

Management for Non-Management Students – see Desautels Faculty of Management > Minor Management (For Non-Management Students) (18 credits)

Marketing for Non-Management Students – see Desautels Faculty of Management > Minor Marketing (For Non-Management Students) (18 credits)

Mathematics, section 12.14.21.5: Bachelor of Science (B.Sc.) - Minor Mathematics (24 credits)

Musical Applications of Technology – see Schulich School of Music > Bachelor of Music (B.Mus.) - Minor Musical Applications of Technology (18 credits)

Musical Science and Technology – see Schulich School of Music > Bachelor of Music (B.Mus.) - Minor Musical Science and Technology (18 credits)

Natural History – see section 12.14.33.4: Bachelor of Science (B.Sc.) - Minor Natural History (24 credits)

Neuroscience, section 12.14.25.3: Bachelor of Science (B.Sc.) - Minor Neuroscience (24 credits)

Operations Management for Non-Management Students – see Desautels Faculty of Management > Minor Operations Management (For Non-Management Students) (18 credits)

Pharmacology, section 12.14.28.4: Bachelor of Science (B.Sc.) - Minor Pharmacology (24 credits)

Physics, section 12.14.29.6: Bachelor of Science (B.Sc.) - Minor Physics (18 credits)

Psychology, section 12.14.32.5: Bachelor of Science (B.Sc.) - Minor Psychology (24 credits)

Statistics, section 12.14.21.6: Bachelor of Science (B.Sc.) - Minor Statistics (24 credits)

Technological Entrepreneurship for Science Students – application required, see program listing: section 12.14.35.3: Bachelor of Science (B.Sc.) - Minor Technological Entrepreneurship for Science Students (18 credits) (Please note that this Minor is currently under review.)

Revision, August 2011. End of revision.

Notes:

1. The Minor in Chemical Engineering is only available to students in Chemistry.
2. The Minor in Electrical Engineering is only available to students in the Major program in Physics.
3. The Minor in General Science is only available to students in B.Sc. Liberal programs.

12.11.3 Concurrent B.Sc. and B.Ed. Program (Science or Mathematics for Teachers)

Major in Mathematics for Teachers – see Science or Mathematics for Teachers, section 5.10.18: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Mathematics for Teachers (135 credits)

Major Concentration in Biology with a Minor in Chemistry for Teachers – see Science or Mathematics for Teachers, section 5.10.10: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Cell/Molecular with Minor Chemistry for Teachers (135 credits) or section 5.10.12: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Organismal with Minor Chemistry for Teachers (135 credits)

Major Concentration in Biology with a Minor in Physics for Teachers – see Science or Mathematics for Teachers, section 5.10.11: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Cell/Molecular with Minor Physics for Teachers (135 credits) or section 5.10.13: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Organismal with Minor Physics for Teachers (135 credits)
Major Concentration in Chemistry with a Minor in Biology for Teachers – see Science or Mathematics for Teachers, section 5.10.14: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Chemistry with Minor Biology for Teachers (135 credits)

Major Concentration in Chemistry with a Minor in Physics for Teachers – see Science or Mathematics for Teachers, section 5.10.15: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Chemistry with Minor Physics for Teachers (135 credits)

Major Concentration in Physics with a Minor in Biology for Teachers – see Science or Mathematics for Teachers, section 5.10.16: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Physics with Minor Biology for Teachers (135 credits)

Major Concentration in Physics with a Minor in Chemistry for Teachers – see Science or Mathematics for Teachers, section 5.10.17: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Physics with Minor Chemistry for Teachers (135 credits)

12.11.4 Bachelor of Arts and Science

Please see the Bachelor of Arts and Science section of this publication for details.

12.11.5 Internship Programs – Industrial Practicum (IP) and Internship Year in Science (IYS)

The Faculty of Science offers an internship program which features the Industrial Practicum (4 months) and the Internship Year in Science (8, 12, 16 months). Participating in an internship offers you the chance to add a practical element to your studies, to solidify your career goals, to gain some valuable experience, and to earn money.

It will also give you the opportunity to enhance your degree: if you complete two IPs or participate in an IYS, the name of your program will change to include the word internship (e.g., Bachelor of Science - Internship Program - Biology).

To learn more about the Science internship programs, visit www.mcgill.ca/science/internships-field/internships.

12.11.6 Faculty of Arts Major and Minor Concentration Programs Available to Science Students

For more information, please see the relevant departmental entries under the Faculty of Arts section.

12.11.6.1 Major Concentrations

African Studies, section 3.11.4.5: Bachelor of Arts (B.A.) - Major Concentration African Studies (36 credits)

Anthropology, section 3.11.5.7: Bachelor of Arts (B.A) - Major Concentration Anthropology (36 credits)

Art History, section 3.11.6.6: Bachelor of Arts (B.A.) – Major Concentration Art History (36 credits)

Canadian Studies, section 3.11.8.5: Bachelor of Arts (B.A.) – Major Concentration Canadian Studies (36 credits)

Classics, section 3.11.10.6: Bachelor of Arts (B.A.) - Major Concentration Classics (36 credits)

East Asian Studies, section 3.11.13.7: Bachelor of Arts (B.A.) - Major Concentration East Asian Studies (36 credits)

Economics, section 3.11.14.5: Bachelor of Arts (B.A.) - Major Concentration Economics (36 credits)

English - Cultural Studies, section 3.11.17.11: Bachelor of Arts (B.A.) – Major Concentration English – Cultural Studies (36 credits)

English - Drama and Theatre, section 3.11.17.10: Bachelor of Arts (B.A.) - Major Concentration English - Drama and Theatre (36 credits)

English - Literature, section 3.11.17.9: Bachelor of Arts (B.A.) - Major Concentration English - Literature (36 credits)

Geography (Urban Systems), section 3.11.23.8: Bachelor of Arts (B.A.) - Major Concentration Geography (Urban Systems) (36 credits)

German Language and Literature, section 3.11.24.10: Bachelor of Arts (B.A.) - Major Concentration German Studies - Language and Literature (36 credits)

German Literature and Culture, section 3.11.24.11: Bachelor of Arts (B.A.) - Major Concentration German Studies - Literature and Culture (36 credits)

German Studies, Contemporary, section 3.11.24.9: Bachelor of Arts (B.A.) - Major Concentration Contemporary German Studies (36 credits)

Hispanic Languages, section 3.11.25.7: Bachelor of Arts (B.A.) - Major Concentration Hispanic Studies - Languages (36 credits)

Hispanic Literature and Culture, section 3.11.25.8: Bachelor of Arts (B.A.) - Major Concentration Hispanic Studies - Literature and Culture (36 credits)

History, section 3.11.26.6: Bachelor of Arts (B.A.) - Major Concentration History (36 credits)

International Development Studies, section 3.11.30.5: Bachelor of Arts (B.A.) - Major Concentration International Development Studies (36 credits)

Italian Studies, section 3.11.32.5: Bachelor of Arts (B.A.) - Major Concentration Italian Studies (36 credits)

Jewish Studies, section 3.11.33.6: Bachelor of Arts (B.A.) - Major Concentration Jewish Studies (36 credits)
Langue et littérature françaises - Études et pratiques littéraires, section 3.11.22.10: Bachelor of Arts (B.A.) - Concentration majeure langue et littérature françaises - Études et pratiques littéraires (36 crédits)

Langue et littérature françaises - Traduction, section 3.11.22.11: Bachelor of Arts (B.A.) - Concentration majeure langue et littérature françaises - Traduction (36 crédits)

Latin-American Studies, section 3.11.34.5: Bachelor of Arts (B.A.) - Major Concentration Latin American Studies (36 credits)

Linguistics, section 3.11.35.7: Bachelor of Arts (B.A.) – Major Concentration Linguistics (36 credits)

Middle East Studies, section 3.11.37.6: Bachelor of Arts (B.A.) - Major Concentration Middle East Studies (36 credits)

Music (available to students in B.Sc. Liberal only), section 3.11.38.7: Bachelor of Arts (B.A.) - Major Concentration Music (36 credits)

North American Studies, section 3.11.39.5: Bachelor of Arts (B.A.) - Major Concentration North American Studies (36 credits)

Philosophy, section 3.11.40.5: Bachelor of Arts (B.A.) - Major Concentration Philosophy (36 credits)

Philosophy and Western Religions, section 3.11.41.5: Bachelor of Arts (B.A.) - Major Concentration Philosophy and Western Religions (36 credits)

Political Science, section 3.11.42.14: Bachelor of Arts (B.A.) - Major Concentration Political Science (36 credits)

Québec Studies, section 3.11.44.6: Bachelor of Arts (B.A.) - Major Concentration Quebec Studies / La concentration Majeur en Études sur le Québec (36 credits)

Russian, section 3.11.46.6: Bachelor of Arts (B.A.) - Major Concentration Russian (36 credits)

Scriptures and Interpretation - see Religious Studies, section 3.11.45.8: Bachelor of Arts (B.A.) - Major Concentration Scriptures and Interpretations (36 credits)

Sociology, section 3.11.51.6: Bachelor of Arts (B.A.) - Major Concentration Sociology (36 credits)

Women's Studies, section 3.11.52.5: Bachelor of Arts (B.A.) - Major Concentration Women's Studies (36 credits)

World Religions - see Religious Studies, section 3.11.45.7: Bachelor of Arts (B.A.) - Major Concentration World Religions (36 credits)

12.11.6.2 Minor Concentrations

African Studies, section 3.11.4.4: Bachelor of Arts (B.A.) - Minor Concentration African Studies (18 credits)

Anthropology, section 3.11.5.6: Bachelor of Arts (B.A.) - Minor Concentration Anthropology (18 credits)

Art History, section 3.11.6.5: Bachelor of Arts (B.A.) - Minor Concentration Art History (18 credits)

Canada/Québec - see Political Science, section 3.11.42.7: Bachelor of Arts (B.A.) - Minor Concentration Political Science: Canada/Québec (18 credits)

Canadian Ethnic and Racial Studies, section 3.11.7.4: Bachelor of Arts (B.A.) - Minor Concentration Canadian Ethnic and Racial Studies (18 credits)

Canadian Studies, section 3.11.8.4: Bachelor of Arts (B.A.) – Minor Concentration Canadian Studies (18 credits)

Catholic Studies, section 3.11.9.4: Bachelor of Arts (B.A.) - Minor Concentration Catholic Studies (18 credits)

Classics, section 3.11.10.4: Bachelor of Arts (B.A.) - Minor Concentration Classics (18 credits)

Communication Studies - see Art History and Communication Studies, section 3.11.6.9: Bachelor of Arts (B.A.) - Minor Concentration Communication Studies (18 credits)

Comparative Politics - see Political Science, section 3.11.42.8: Bachelor of Arts (B.A.) - Minor Concentration Comparative Politics (18 credits)

East Asian Language and Literature, section 3.11.13.4: Bachelor of Arts (B.A.) - Minor Concentration East Asian Language and Literature (18 credits)

East Asian Cultural Studies, section 3.11.13.5: Bachelor of Arts (B.A.) - Minor Concentration East Asian Cultural Studies (18 credits)

East Asian Language, Supplementary, section 3.11.13.6: Bachelor of Arts (B.A.) - Minor Concentration Supplementary East Asian Language (18 credits)

Economics, section 3.11.14.4: Bachelor of Arts (B.A.) - Minor Concentration Economics (18 credits)

English - Cultural Studies, section 3.11.17.8: Bachelor of Arts (B.A.) – Minor Concentration English – Cultural Studies (18 credits)

English - Literature, section 3.11.17.6: Bachelor of Arts (B.A.) - Minor Concentration English - Literature (18 credits)

English - Drama and Theatre, section 3.11.17.7: Bachelor of Arts (B.A.) - Minor Concentration English - Drama and Theatre (18 credits)

Geographical Information Systems - see Geography, section 3.11.23.5: Bachelor of Arts (B.A.) - Minor Concentration Geographic Information Systems (18 credits)

Geography, section 3.11.23.4: Bachelor of Arts (B.A.) - Minor Concentration Geography (18 credits)
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<tr>
<th>Section</th>
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<tr>
<td>3.11.24.6</td>
<td>Bachelor of Arts (B.A.) - Minor Concentration German Language (18 credits)</td>
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<td>Bachelor of Arts (B.A.) - Minor Concentration German Literature (18 credits)</td>
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<td>3.11.24.8</td>
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<td>3.11.27.4</td>
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<td>3.11.42.9</td>
<td>Bachelor of Arts (B.A.) - Minor Concentration International Relations (18 credits)</td>
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<td>3.11.31.4</td>
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<td>3.11.22.9</td>
<td>Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises - Critique littéraire (18 crédits)</td>
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<td>3.11.22.7</td>
<td>Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises - Études et pratiques littéraires (18 crédits)</td>
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<td>Bachelor of Arts (B.A.) - Concentration mineure langue et littérature françaises - Traduction (18 crédits)</td>
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<td>3.11.42.12</td>
<td>Bachelor of Arts (B.A.) – Minor Concentration Politics, Law and Society (18 credits)</td>
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<td>3.11.44.5</td>
<td>Bachelor of Arts (B.A.) - Minor Concentration Quebec Studies / La concentration Mineur en Études sur le Québec (18 credits)</td>
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<td>3.11.46.4</td>
<td>Bachelor of Arts (B.A.) - Minor Concentration Russian (18 credits)</td>
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<td>Bachelor of Arts (B.A.) – Minor Concentration Russian Culture (18 credits)</td>
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<td>3.11.45.6</td>
<td>Bachelor of Arts (B.A.) - Minor Concentration Scriptural Languages (18 credits)</td>
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<td>3.11.46.4</td>
<td>Bachelor of Arts (B.A.) - Minor Concentration Social Studies of Medicine (18 credits)</td>
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<td>3.11.51.5</td>
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<td>3.11.42.13</td>
<td>Bachelor of Arts (B.A.) - Minor Concentration South Asia (18 credits)</td>
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<td>3.11.53.4</td>
<td>Bachelor of Arts (B.A.) - Minor Concentration World Cinemas (18 credits)</td>
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</table>
12.12 Undergraduate Research Opportunities

Because McGill is a research-intensive university, research informs the curriculum. There are many opportunities for talented students to take part in research during their undergraduate studies, whether at McGill, in affiliated hospitals, at other universities, or in the field. Many of these are organized through formal courses or programs organized by the Faculty of Science or its departments. For more information, see the following:

- section 12.12.1: Research Project Courses
- section 12.12.1.1: “396” Undergraduate Research Project Courses
- section 12.12.2: Undergraduate Student Research Awards – NSERC USRA, NSERC Industrial USRA, SURA, FRSQ USRA.
- section 12.12.3: Undergraduate Research Conference
- section 12.12.4: Other opportunities
- Dean's Multidisciplinary Undergraduate Research List - see description elsewhere in this publication: University Regulations and Information > Graduation > Graduation Honours: Faculty of Science Dean's Multidisciplinary Undergraduate Research List

The Office for Undergraduate Research in Science (OURS) coordinates several of the aforementioned programs, and can help students find out about other opportunities. Visit the OURS website at www.mcgill.ca/science/ours to find out more.

Because internships and field study programs may include a research component, please also see:

- section 12.13.1: Industrial Practicum (IP) and Internship Year in Science (IYS)
- section 12.13.2: Field Study and Study Abroad

12.12.1 Research Project Courses

Departments offer a variety of research-based courses which allow you to perform research under the supervision of a McGill researcher for academic credit. Depending on the unit, courses featuring undergraduate research may bear names such as: majors project, honours project, advanced lab, independent research, technical project, independent study, or research project and seminar. For more information, see the research course list online at www.mcgill.ca/science/ours/researchcourses or browse the course listings at www.mcgill.ca/students/courses/calendars/keyword.

12.12.1.1 “396” Undergraduate Research Project Courses

“396” undergraduate research project courses are offered by most departments and schools – ANAT 396, ATOC 396, BIOC 396, BIOL 396, etc. – plus COGS 396 and NSCI 396. They are elective courses, which can be taken outside your own department, and can be taken after one term of undergraduate studies. Note that for Microbiology and Immunology, MIMM 396 is for microbiology projects whereas MIMM 397 is for immunology; otherwise, for all practical purposes MIMM 397 should be treated as a “396” course. There is also a BASC 396 course for B.A. & Sc. students.

Students can consult a list of past projects and currently available projects on the Science website at www.mcgill.ca/science/ours/396, or they can devise a new project in consultation with a McGill professor and submit the required paperwork online.

12.12.2 Undergraduate Student Research Awards

There are several award programs that fund undergraduate student research projects at McGill (and sometimes off-campus), usually in the summer. Please see the following:

- section 12.12.2.1: NSERC Undergraduate Student Research Awards
- section 12.12.2.2: NSERC Industrial Undergraduate Student Research Awards
- section 12.12.2.3: SURA: Science Undergraduate Research Awards
- section 12.12.2.4: FRSQ Undergraduate Student Research Awards

Please also consult the Office for Undergraduate Research in Science website at www.mcgill.ca/science/ours for any new programs that may have been added.

12.12.2.1 NSERC Undergraduate Student Research Awards

The Natural Sciences and Engineering Research Council of Canada Undergraduate Student Research Awards (NSERC USRA) in Universities program supports 16 consecutive weeks of paid full-time research under the supervision of a professor who holds an NSERC grant. It is an excellent way to prepare for graduate studies or a future career in science. This program is offered at other universities across Canada, and a travel allowance from NSERC is available.
To apply, students must first identify a proposed supervisor who holds an NSERC grant. Students should apply at the university where they wish to hold the award. Applicants must be Canadian citizens or permanent residents of Canada. See [www.mcgill.ca/science/ours/nserc](http://www.mcgill.ca/science/ours/nserc) for more information.

### 12.12.2.2 NSERC Industrial Undergraduate Student Research Awards

In cooperation with a company, students can also apply for an Industrial NSERC Award to provide salary support and gain industrially relevant experience. Students apply for these awards through one or more companies (not through McGill). For more information on forms, student eligibility, and company eligibility, please visit the NSERC website [www.nserc.ca](http://www.nserc.ca) and look for the *Industrial Undergraduate Student Research Awards*.

### 12.12.2.3 SURA: Science Undergraduate Research Awards

Science Undergraduate Research Awards – SURAs – are for both Canadian and international McGill students registered in a science undergraduate program. SURAs are broadly similar to the NSERC USRA; two differences are, on the student side, that *international students may apply*, and on the supervisor side, while they must still hold a research grant, the grant may be from one of the other funding agencies, namely CRC, NSERC, CIHR, SSHRC, FQRNT, or FRSQ (not only NSERC).


### 12.12.2.4 FRSQ Undergraduate Student Research Awards

This program is meant to stimulate interest in research on the part of students registered in an undergraduate program in Health Sciences or other disciplines offering specialization in health sciences, including social sciences, natural sciences, and engineering. For more information, see [www.mcgill.ca/gps/students/fellowships/frsq-usra](http://www.mcgill.ca/gps/students/fellowships/frsq-usra).

### 12.12.3 Undergraduate Research Conference

Each fall, the Faculty of Science holds an Undergraduate Research Conference to celebrate the research accomplishments of our undergraduate students. The conference also includes a public lecture by a Nobel laureate or other luminary on a topic related to scientific discovery.

Students who wish to present their research posters should contact their departments in the preceding winter or summer, since *departments* nominate participants for the conference.

Everyone is welcome to attend. This is an excellent opportunity to see what McGill undergraduates undertake as research projects.


### 12.12.4 Other opportunities

Science internships and field study programs may have a research component or focus. Please see their descriptions under *section 12.11.5: Internship Programs – Industrial Practicum (IP) and Internship Year in Science (IYS)* and *section 12.13.2: Field Study and Study Abroad* in this publication.

Individual departments and researchers offer many other research opportunities. These may be paid or unpaid, for academic credit or not for credit. Some of these opportunities are formal programs and are described in other sections of this publication (*section 12.12.1: Research Project Courses*, *section 12.12.1.1: "396" Undergraduate Research Project Courses*, and *section 12.12.2: Undergraduate Student Research Awards*) or on the Office for Undergraduate Research in Science website ([www.mcgill.ca/science/ours](http://www.mcgill.ca/science/ours)); however, many opportunities arise as a result of students talking with their professors. For advice on approaching professors, and more generally on how to get involved in research, see [www.mcgill.ca/science/ours/how](http://www.mcgill.ca/science/ours/how).

In addition to opportunities available at McGill, there are several external opportunities at other institutions. Many of these are catalogued at [www.mcgill.ca/science/ours/opportunities](http://www.mcgill.ca/science/ours/opportunities). You may also want to look for additional opportunities funded or offered by the relevant research agencies, institutions, and universities of interest: for example, a provincial cancer research society, a national science funding agency, or a national psychological association.

### 12.13 Science Internships and Field Studies

The *Science Internships & Field Studies Office* promotes field studies and internship opportunities to interested students seeking hands-on experience. The office coordinates the field study semesters offered through the Faculty of Science and provides internship opportunities to students who are in Science programs at McGill. Whether you decide to participate in a field study semester or apply classroom theory to practice, the *Science Internships & Field Studies Office* will offer you assistance in your decision.

#### 12.13.1 Industrial Practicum (IP) and Internship Year in Science (IYS)

These programs are open to all Science undergraduate students. An internship is a career-related, professionally supervised, paid work term and done during your undergraduate degree in a field related to your studies. Internships may have a basis in research. To be eligible to apply:

- You must be a full-time undergraduate student in Science before and after the IP or the IYS is completed.
- You must have completed at least 27 credits and should have at least 12 credits remaining in your degree program.
- Your CGPA must be 2.7 or higher.
International students are eligible to apply to all IYS positions (unless otherwise indicated in the job posting) and to summer IPs (provided the student has an off-campus work permit).

For more information on IP and IYS, please see section 12.7.4.5: Internship Year in Science (IYS) and www.mcgill.ca/science/internships-field/internships.

12.13.2 Field Study and Study Abroad

McGill's Field Study Semester programs (in Africa, Barbados, and Panama) are research-based, as are many shorter field courses offered by the Departments of Biology, Earth & Planetary Sciences, and Geography. See Field Studies and Study Abroad and www.mcgill.ca/science/student/internships-field/field for more information about these programs and courses.

12.14 Academic Programs (Faculty of Science)

What is a Major Program?

A major is a versatile, comprehensive primary area of study. Most major programs require about two-thirds of your total credits. With the remaining credits, you can choose electives, or you may want to use those additional credits to take a minor which can be chosen from a wide variety of areas both within and outside of Science.

What is an Honours Program?

Honours programs typically involve an even higher degree of specialization than majors, include supervised research, and require students to maintain a high academic standard. An honours program provides solid preparation for graduate school. With an honours program, you will have fewer elective credits.

What is a B.Sc. Liberal Program?

This is a flexible and modular program. You combine a core science component (CSC) in a Science discipline with a breadth component which may be a minor from a wide variety of areas, a major concentration from the Faculty of Arts, or a second CSC from Science. Consider the Liberal program if you do not want to overly specialize – plus, you will still have room left over for elective courses.

What about Joint Programs?

The Faculty of Science also has quite a few joint programs. These programs combine two different disciplines, which allow you to gain expertise in two fields.

What about Interdisciplinary Programs?

There are many ways to create interdisciplinary programs in the Faculty of Science. You can add a minor to a major or honours program, you can take a liberal program which contains both a core science component and a breadth component, or you can select an explicit interdisciplinary major. The Faculty of Science offers three such interdisciplinary programs: Earth System Science, Environment, and Neuroscience.

12.14.1 B.Sc. Freshman Program

If you need 97-120 credits (four years) to complete your degree requirements, you must register in the Science Freshman Program, which is designed to provide the basic science foundation for your subsequent three-year Liberal, Major, or Honours program. For a detailed description of the Science Freshman Program, you should consult section 12.14.1.1: Bachelor of Science (B.Sc.) - Freshman Program (30 credits) and the Science Freshman Student information available on the SOUSA website, www.mcgill.ca/science/sousa/new_students/u0.

If you have completed the Diploma of Collegial Studies, Advanced Placement exams, Advanced Levels, the International Baccalaureate, the French Baccalaureate, or McGill placement examinations, you may receive exemption and/or credit for all or part of the basic science courses in biology, chemistry, mathematics, and physics. Similarly, if you have completed courses at other universities or colleges, you may receive exemptions and/or credits. You should consult www.mcgill.ca/students/transfercredit for more information.

12.14.1.1 Bachelor of Science (B.Sc.) - Freshman Program (30 credits)

Students who need 97-120 credits to complete their degree requirements will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUSA) to obtain advice and approval of their course selection. Full details are available on the SOUSA website at http://www.mcgill.ca/science/sousa/new_students/u0. Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.

Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science Courses, selected as follows:

General Math and Science Breadth

Six of the Freshman courses to satisfy one of the following:

Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;

or

Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.
Science Complementary

The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:

1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.

2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.

3. Students entering the Freshman Program should be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman especific/.

4. The maximum number of courses per term, required, complementary, and elective, is five.

5. Some medical and dental schools have specific freshman course requirements. Check the admission requirements of the school(s) to which you intend to apply.

List of approved Freshman Science Courses

Select the approved courses according to the instructions above.

<table>
<thead>
<tr>
<th>Course</th>
<th>Prerequisites</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 111</td>
<td>(3)</td>
<td>Principles: Organismal Biology</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>(3)</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>(4)</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 115*</td>
<td>(4)</td>
<td>Accelerated General Chemistry: Giants in Science</td>
</tr>
<tr>
<td>CHEM 120*</td>
<td>(4)</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>COMP 202</td>
<td>(3)</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>ESYS 104</td>
<td>(3)</td>
<td>The Earth System</td>
</tr>
<tr>
<td>MATH 133</td>
<td>(3)</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>PSYC 100</td>
<td>(3)</td>
<td>Introduction to Psychology</td>
</tr>
</tbody>
</table>

* CHEM 115 is not open to students who are taking or have taken CHEM 110 or CHEM 120.

* CHEM 120 is not open to students who have taken CHEM 115.

First calculus course, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>MATH 139</td>
<td>4</td>
<td>Calculus 1 with Precalculus</td>
</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 150</td>
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<td>Calculus A</td>
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Second calculus course, one of:

<table>
<thead>
<tr>
<th>Course</th>
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<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>MATH 151</td>
<td>4</td>
<td>Calculus B</td>
</tr>
</tbody>
</table>

First physics course, one of:

<table>
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<tr>
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<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 101</td>
<td>4</td>
<td>Introductory Physics - Mechanics</td>
</tr>
<tr>
<td>PHYS 131</td>
<td>4</td>
<td>Mechanics and Waves</td>
</tr>
</tbody>
</table>

Second physics course, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 102</td>
<td>4</td>
<td>Introductory Physics - Electromagnetism</td>
</tr>
</tbody>
</table>
Elective Courses

Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/approved/. Certain courses offered by other faculties may also be taken, but some restrictions apply. Consult the SOUSA website at http://www.mcgill.ca/science/sousa/continuing_students/bsc/outside/ for more information about taking courses from other faculties.

12.14.2 Anatomy and Cell Biology (ANAT)

12.14.2.1 Location

Strathcona Anatomy and Dentistry Building, Room 1/60
3640 University Street
Montreal, Quebec H3A 2B2

Telephone: 514-398-6335
Website: www.mcgill.ca/anatomy

12.14.2.2 About Anatomy and Cell Biology

The Department of Anatomy and Cell Biology offers courses that deal with cell biology, histology, embryology, neuroanatomy, and gross anatomy. The Honours program is designed as the first phase in the training of career cell and molecular biologists. The Major and Liberal programs offer decreasing levels of specialization in Anatomy and Cell Biology but with a broader base in other biological sciences. These programs also form a sound background for graduate studies in Anatomy and Cell Biology, or for further professional training. Students should choose their major based on their interest and also consider the Interdisciplinary Minor in Life Sciences. A B.Sc. in Anatomy and Cell Biology provides an excellent preparation for technical and administrative positions in laboratories of universities, research institutions, hospitals, pharmaceutical and biotechnological industries.

The Department is equipped to perform protein purification, recombinant DNA technology, micro-injection of molecules into single cells, cytochemical, immunocytochemical and fluorescent analysis and electron microscopy, proteomics and genomics. The Department has a well-equipped centre for electron microscopy as well as a centre for confocal and immunofluorescence. The new cryo-electron microscope facility in the Department is unique and represents a cutting edge technology to apply fundamental discoveries to therapeutic applications.

Inquiries about programs should be directed to the Department of Anatomy and Cell Biology.

12.14.2.3 Anatomy and Cell Biology (ANAT) Faculty

Chair

Nathalie Lamarche-Vane (Acting Chair)

Emeritus Professors

Gary C. Bennett; B.A., B.Sc.(Sir G. Wms.), M.Sc., Ph.D.(McG.)
Yves Clermont; B.Sc.(Montr.), Ph.D.(McG.), F.R.C.S.
Dennis G. Osmond; C.M., B.Sc., M.B., Ch.B., D.Sc.(Brist.), M.R.C.S., L.R.C.P., F.R.S.C.
H. Warshawsky; B.Sc.(Sir G. Wms.), M.Sc., Ph.D.(McG.)

Professors

Chantal Autexier; B.Sc.(C’dia), Ph.D.(McG.)
Philip Barker; B.Sc.(S. Fraser), Ph.D.(Alta.) (joint appt. with Neurology & Neurosurgery)
Alain Beaudet; M.Sc., Ph.D., M.D.(Montr.) (joint appt. with Neurology & Neurosurgery)
James R. Brawer; B.S.(Tufts), Ph.D.(Harv.)
Miguel Burnier; M.D., M.Sc., Ph.D.(Brazil) (joint appt. with Ophthalmology)
Samuel David; Ph.D.(Manit.) (joint appt. with Neurology & Neurosurgery)
Louis Hermo; B.A.(Loyola), M.Sc., Ph.D.(McG.)
Nathalie Lamarche-Vane; B.Sc., Ph.D.(Montr.)
### Professors

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualifications</th>
<th>Joint Appointments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marc D. McKee</td>
<td>B.Sc., M.Sc., Ph.D.(McG.)</td>
<td>(joint app't with Dentistry)</td>
</tr>
<tr>
<td>Peter McPherson</td>
<td>B.Sc.(Manit.), Ph.D.(Iowa)</td>
<td>(joint app't with Neurology and Neurosurgery)</td>
</tr>
<tr>
<td>Sandra C. Miller</td>
<td>B.Sc.(Sir G. Wms.), M.Sc., Ph.D.(McG.)</td>
<td></td>
</tr>
<tr>
<td>Carlos R. Morales</td>
<td>DVM.(U.N., Argentina), Ph.D.(McG.)</td>
<td></td>
</tr>
<tr>
<td>Barry I. Posner</td>
<td>M.D.(Manit.), F.R.C.P.(C)</td>
<td>(joint app't with Medicine)</td>
</tr>
<tr>
<td>Alfredo Ribeiro-da-Silva</td>
<td>M.D., Ph.D.(Oporto)</td>
<td>(joint app't with Pharmacology and Therapeutics)</td>
</tr>
<tr>
<td>Wayne Sossin</td>
<td>S.B.(MIT), Ph.D.(Stan.)</td>
<td>(joint app't with Neurology &amp; Neurosurgery)</td>
</tr>
<tr>
<td>Stefano Stifani</td>
<td>Ph.D.(Rome), Ph.D.(Alta.)</td>
<td>(joint app't with Neurology &amp; Neurosurgery)</td>
</tr>
<tr>
<td>Dominique Walker</td>
<td>B.Sc., Ph.D.(Geneva)</td>
<td>(joint app't with Psychiatry)</td>
</tr>
</tbody>
</table>

### Associate Professors

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<thead>
<tr>
<th>Name</th>
<th>Qualifications</th>
<th>Joint Appointments</th>
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<tbody>
<tr>
<td>Orest W. Blaschuk</td>
<td>B.Sc.(Winn.), M.Sc.(Manit.), Ph.D.(Tor.)</td>
<td>(joint app't with Surgery)</td>
</tr>
<tr>
<td>Eugene Daniels</td>
<td>M.Sc., Ph.D.(Manit.)</td>
<td></td>
</tr>
<tr>
<td>Elaine Davis</td>
<td>B.Sc., M.Sc.(W. Ont.), Ph.D.(McG.)</td>
<td></td>
</tr>
<tr>
<td>Timothy Kennedy</td>
<td>B.Sc.(McM.), M.Phil., Ph.D.(Col.)</td>
<td>(joint app't with Neurology &amp; Neurosurgery)</td>
</tr>
<tr>
<td>M.F. Lalli</td>
<td>B.Sc., M.Sc.(Bowling Green), Ph.D.(McG.)</td>
<td></td>
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<tr>
<td>Craig Mandato</td>
<td>B.Sc., Ph.D.(Wat.)</td>
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<tr>
<td>John F. Presley</td>
<td>B.A., Ph.D.(Texas)</td>
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<tr>
<td>Dieter Reinhardt</td>
<td>M.S.(Kaiserslautern), Ph.D.(Munich)</td>
<td>(joint app't with Dentistry)</td>
</tr>
<tr>
<td>Hojatollah Vali</td>
<td>B.Sc., M.Sc., Ph.D.(Munich)</td>
<td>(joint app't with Earth and Planetary Sciences)</td>
</tr>
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### Assistant Professors

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualifications</th>
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</thead>
<tbody>
<tr>
<td>Fiona Bedford</td>
<td>B.Sc.(Birm.), Ph.D.(Lond.)</td>
</tr>
<tr>
<td>Isabelle Rouiller</td>
<td>Ph.D.(UK)</td>
</tr>
</tbody>
</table>

### Associate Members

<table>
<thead>
<tr>
<th>Name</th>
<th>Qualifications</th>
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</thead>
<tbody>
<tr>
<td>John J.M. Bergeron</td>
<td>(Medicine)</td>
</tr>
<tr>
<td>Albert Berghuis</td>
<td>(Biochemistry)</td>
</tr>
<tr>
<td>Colin Chalk</td>
<td>(Neurology &amp; Neurosurgery)</td>
</tr>
<tr>
<td>Jean-François Cloutier</td>
<td>(Neurology &amp; Neurosurgery)</td>
</tr>
<tr>
<td>Claudio Cuello</td>
<td>(Pharmacology &amp; Therapeutics)</td>
</tr>
<tr>
<td>Giovanni DiBattista</td>
<td>(Medicine)</td>
</tr>
<tr>
<td>Alyson Fournier</td>
<td>(Neurology &amp; Neurosurgery)</td>
</tr>
<tr>
<td>Janet Henderson</td>
<td>(Medicine)</td>
</tr>
<tr>
<td>Robert Scott Kiss</td>
<td>(Biochemistry)</td>
</tr>
<tr>
<td>Bartha Knoppers</td>
<td>(Human Genetics)</td>
</tr>
<tr>
<td>Svetlana Komarova</td>
<td>(Dentistry)</td>
</tr>
<tr>
<td>Paul Lasko</td>
<td>(Biology)</td>
</tr>
<tr>
<td>Andrea Leblanc</td>
<td>(Neurology &amp; Neurosurgery)</td>
</tr>
<tr>
<td>Peter Metrakos</td>
<td>(Department of Surgery)</td>
</tr>
<tr>
<td>Tommy Nilsson</td>
<td>(Medicine)</td>
</tr>
<tr>
<td>Edward S. Ruthazer</td>
<td>(Neurology &amp; Neurosurgery)</td>
</tr>
<tr>
<td>Michael Sacher</td>
<td>(Biology)</td>
</tr>
</tbody>
</table>
Associate Members
Philippe Seguela (Neurology & Neurosurgery)
Peter Siegel (Medicine & Biochemistry)
Thomas Stroh (Neurology & Neurosurgery)
David Y. Thomas (Biochemistry)
Jacalyn Vogel (Biology)
Xiang-Jiao Yang (Medicine)

Adjunct Professors
Michel Cayouette; Ph.D.(Laval)
Frederic Charron; B.Sc.(Montr.), Ph.D.(McG.)
Eric Chevet; Ph.D.(Paris)
Miroslaw Cygler; M.Sc., Ph.D.(Lodz, Poland)
Daniel Cyr; B.Sc., M.Sc.(C’dia), Ph.D.(Manit.)
Michel Desjardins; M.Sc., Ph.D.(Montr.)
Jacques Drouin; B.Sc., D.Sc.(Laval)
David Hipfner; B.Sc., Ph.D.(Qu.)
Marko Horb; Ph.D.(SUNY)
Artur Kania; Ph.D.(Baylor)
André Nantel; B.Sc., M.Sc.(Laval), Ph.D.(Chapel Hill)
Alexei Pshezhetsky; Ph.D.(Russia)
Joseph Schrag; M.Sc., Ph.D.(Ill.)
Atilla Sik; M.Sc., Ph.D.(Hungary)
Pierre Thibault; Ph.D.(Montr.)

Faculty Lecturers
Ayman Behiery; M.B., Ch.B.(Cairo)
Geoffroy P. Noël; Ph.D.(Br. Col.)

12.14.2.4 Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Anatomy and Cell Biology (48 credits)
Students may complete this program with a minimum of 47 credits or a maximum of 48 credits depending on their choice of complementary courses.

Required Courses (32 credits)
* Students who have taken the equivalent of CHEM 212 and/or MATH 203 in CEGEP (as defined at http://www.mcgill.ca/students/courses/plan/transfer/) are exempt and must replace these credits with elective course credits to satisfy the total credit requirement for their degree.

ANAT 212 (3) Molecular Mechanisms of Cell Function
ANAT 214 (3) Systemic Human Anatomy
ANAT 261 (4) Introduction to Dynamic Histology
ANAT 262 (3) Introductory Molecular and Cell Biology
BIOL 200 (3) Molecular Biology
BIOL 202 (3) Basic Genetics
CHEM 212* (4) Introductory Organic Chemistry 1
PHGY 209 (3) Mammalian Physiology 1
PHGY 210 (3) Mammalian Physiology 2
One of the following statistics courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>MATH 203</td>
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<td>Principles of Statistics 1</td>
</tr>
<tr>
<td>PSYC 204</td>
<td>3</td>
<td>Introduction to Psychological Statistics</td>
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</table>

**Complementary Courses (16 credits)**

Students complete a minimum of 15 or a maximum of 16 complementary course credits selected as follows:

**List A**

9 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>ANAT 321</td>
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<td>Circuitry of the Human Brain</td>
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<tr>
<td>ANAT 322</td>
<td>3</td>
<td>Neuroendocrinology</td>
</tr>
<tr>
<td>ANAT 365</td>
<td>3</td>
<td>Cellular Trafficking</td>
</tr>
<tr>
<td>ANAT 381</td>
<td>3</td>
<td>Basis of Embryology</td>
</tr>
<tr>
<td>ANAT 565</td>
<td>3</td>
<td>Diseases-Membrane Trafficking</td>
</tr>
<tr>
<td>NEUR 310</td>
<td>3</td>
<td>Cellular Neurobiology</td>
</tr>
</tbody>
</table>

**List B**

6-7 credits selected from:

<table>
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<tr>
<th>Course</th>
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<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 321</td>
<td>3</td>
<td>Circuitry of the Human Brain</td>
</tr>
<tr>
<td>ANAT 322</td>
<td>3</td>
<td>Neuroendocrinology</td>
</tr>
<tr>
<td>ANAT 365</td>
<td>3</td>
<td>Cellular Trafficking</td>
</tr>
<tr>
<td>ANAT 381</td>
<td>3</td>
<td>Basis of Embryology</td>
</tr>
<tr>
<td>ANAT 565</td>
<td>3</td>
<td>Diseases-Membrane Trafficking</td>
</tr>
<tr>
<td>BIOL 300</td>
<td>3</td>
<td>Molecular Biology of the Gene</td>
</tr>
<tr>
<td>BIOL 301</td>
<td>4</td>
<td>Cell and Molecular Laboratory</td>
</tr>
<tr>
<td>BIOL 303</td>
<td>3</td>
<td>Developmental Biology</td>
</tr>
<tr>
<td>BIOL 306</td>
<td>3</td>
<td>Neural Basis of Behaviour</td>
</tr>
<tr>
<td>BIOL 314</td>
<td>3</td>
<td>Molecular Biology of Oncogenes</td>
</tr>
<tr>
<td>EXMD 504</td>
<td>3</td>
<td>Biology of Cancer</td>
</tr>
<tr>
<td>MIMM 314</td>
<td>3</td>
<td>Immunology</td>
</tr>
<tr>
<td>NEUR 310</td>
<td>3</td>
<td>Cellular Neurobiology</td>
</tr>
<tr>
<td>PATH 300</td>
<td>3</td>
<td>Human Disease</td>
</tr>
<tr>
<td>PHAR 300</td>
<td>3</td>
<td>Drug Action</td>
</tr>
<tr>
<td>PHAR 301</td>
<td>3</td>
<td>Drugs and Disease</td>
</tr>
</tbody>
</table>

**12.14.2.5 Bachelor of Science (B.Sc.) - Major Anatomy and Cell Biology (67 credits)**

Revision, August 2011. Start of revision.

**Required Courses (43 credits)**

Note: ANAT 261 must be taken in U1.

* Students who have taken the equivalent of CHEM 212, CHEM 222, and/or MATH 203 in CEGEP (as defined at http://www.mcgill.ca/students/courses/plan/transfer/) are exempt and must replace these credits with elective course credits to satisfy the total credit requirement for their degree.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 212</td>
<td>3</td>
<td>Molecular Mechanisms of Cell Function</td>
</tr>
<tr>
<td>ANAT 214</td>
<td>3</td>
<td>Systemic Human Anatomy</td>
</tr>
<tr>
<td>ANAT 261</td>
<td>4</td>
<td>Introduction to Dynamic Histology</td>
</tr>
<tr>
<td>ANAT 262</td>
<td>3</td>
<td>Introductory Molecular and Cell Biology</td>
</tr>
<tr>
<td>BIOL 200</td>
<td>3</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>3</td>
<td>Basic Genetics</td>
</tr>
<tr>
<td>BIOL 301</td>
<td>4</td>
<td>Cell and Molecular Laboratory</td>
</tr>
<tr>
<td>CHEM 212*</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 222*</td>
<td>4</td>
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<td>MIMM 314</td>
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<td>Immunology</td>
</tr>
<tr>
<td>PHGY 209</td>
<td>3</td>
<td>Mammalian Physiology 1</td>
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<tr>
<td>PHGY 210</td>
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<td>Mammalian Physiology 2</td>
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One of the following statistics courses:

<table>
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<tr>
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<tbody>
<tr>
<td>BIOL 373</td>
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<tr>
<td>MATH 203*</td>
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<td>Principles of Statistics 1</td>
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<td>PSYC 204</td>
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<td>Introduction to Psychological Statistics</td>
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</table>

**Complementary Courses (24 credits)**

Complementary courses are selected as follows with a minimum of 6 credits at the 400 level or higher:

12 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ANAT 321</td>
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<td>Circuitry of the Human Brain</td>
</tr>
<tr>
<td>ANAT 322</td>
<td>3</td>
<td>Neuroendocrinology</td>
</tr>
<tr>
<td>ANAT 365</td>
<td>3</td>
<td>Cellular Trafficking</td>
</tr>
<tr>
<td>ANAT 381</td>
<td>3</td>
<td>Basis of Embryology</td>
</tr>
<tr>
<td>ANAT 416</td>
<td>3</td>
<td>Development, Disease and Regeneration</td>
</tr>
<tr>
<td>ANAT 458</td>
<td>3</td>
<td>Membranes and Cellular Signaling</td>
</tr>
<tr>
<td>ANAT 541</td>
<td>3</td>
<td>Cell and Molecular Biology of Aging</td>
</tr>
<tr>
<td>ANAT 565</td>
<td>3</td>
<td>Diseases-Membrane Trafficking</td>
</tr>
<tr>
<td>NEUR 310</td>
<td>3</td>
<td>Cellular Neurobiology</td>
</tr>
</tbody>
</table>

12 credits of biologically oriented courses (BOC) selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 322</td>
<td>3</td>
<td>Neuroendocrinology</td>
</tr>
<tr>
<td>ANAT 365</td>
<td>3</td>
<td>Cellular Trafficking</td>
</tr>
<tr>
<td>ANAT 381</td>
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<td>Basis of Embryology</td>
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<td>ANAT 416</td>
<td>3</td>
<td>Development, Disease and Regeneration</td>
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<tr>
<td>ANAT 432</td>
<td>9</td>
<td>Honours Research Project</td>
</tr>
<tr>
<td>ANAT 458</td>
<td>3</td>
<td>Membranes and Cellular Signaling</td>
</tr>
<tr>
<td>ANAT 541</td>
<td>3</td>
<td>Cell and Molecular Biology of Aging</td>
</tr>
<tr>
<td>ANAT 565</td>
<td>3</td>
<td>Diseases-Membrane Trafficking</td>
</tr>
<tr>
<td>BIOC 311</td>
<td>3</td>
<td>Metabolic Biochemistry</td>
</tr>
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</table>
BIOC 312 (3) Biochemistry of Macromolecules
BIOC 450 (3) Protein Structure and Function
BIOC 458 (3) Membranes and Cellular Signaling
BIOC 503 (3) Immunochemistry
BIOC 300 (3) Molecular Biology of the Gene
BIOC 301 (4) Cell and Molecular Laboratory
BIOC 303 (3) Developmental Biology
BIOC 306 (3) Neural Basis of Behaviour
BIOC 313 (3) Eukaryotic Cell Biology
BIOC 314 (3) Molecular Biology of Oncogenes
BIOC 370 (3) Human Genetics Applied
BIOC 514 (3) Neurobiology Learning and Memory
BIOC 518 (3) Advanced Topics in Cell Biology
BIOC 520 (3) Gene Activity in Development
BIOC 524 (3) Topics in Molecular Biology
BIOC 532 (3) Developmental Neurobiology Seminar
BIOC 544 (3) Genetic Basis of Life Span
BIOC 551 (3) Molecular Biology: Cell Cycle
BIOC 575 (3) Human Biochemical Genetics
BIOC 588 (3) Advances in Molecular/Cellular Neurobiology
BIOT 505 (3) Selected Topics in Biotechnology
EXMD 401 (3) Physiology and Biochemistry Endocrine Systems
EXMD 502 (3) Advanced Endocrinology 01
EXMD 503 (3) Advanced Endocrinology 02
EXMD 504 (3) Biology of Cancer
EXMD 506 (3) Advanced Applied Cardiovascular Physiology
EXMD 507 (3) Advanced Applied Respiratory Physiology
EXMD 508 (3) Advanced Topics in Respiration
MIMM 314 (3) Immunology
MIMM 323 (3) Microbial Physiology
MIMM 324 (3) Fundamental Virology
MIMM 387 (3) Applied Microbiology and Immunology
MIMM 413 (3) Parasitology
MIMM 414 (3) Advanced Immunology
MIMM 465 (3) Bacterial Pathogenesis
MIMM 466 (3) Viral Pathogenesis
MIMM 509 (3) Inflammatory Processes
PATH 300 (3) Human Disease
PHAR 300 (3) Drug Action
PHAR 301 (3) Drugs and Disease
PHAR 303 (3) Principles of Toxicology
PHAR 562 (3) General Pharmacology 1
PHAR 563 (3) General Pharmacology 2
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHGY 311</td>
<td>3</td>
<td>Channels, Synapses &amp; Hormones</td>
</tr>
<tr>
<td>PHGY 312</td>
<td>3</td>
<td>Respiratory, Renal, &amp; Cardiovascular Physiology</td>
</tr>
<tr>
<td>PHGY 313</td>
<td>3</td>
<td>Blood, Gastrointestinal, &amp; Immune Systems Physiology</td>
</tr>
<tr>
<td>PHGY 314</td>
<td>3</td>
<td>Integrative Neuroscience</td>
</tr>
<tr>
<td>PHGY 451</td>
<td>3</td>
<td>Advanced Neurophysiology</td>
</tr>
<tr>
<td>PHGY 502</td>
<td>3</td>
<td>Exercise Physiology</td>
</tr>
<tr>
<td>PHGY 508</td>
<td>3</td>
<td>Advanced Renal Physiology</td>
</tr>
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<td>PHGY 513</td>
<td>3</td>
<td>Cellular Immunology</td>
</tr>
<tr>
<td>PHGY 515</td>
<td>3</td>
<td>Physiology of Blood 1</td>
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<tr>
<td>PHGY 516</td>
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<td>Physiology of Blood 2</td>
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<tr>
<td>PHGY 517</td>
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<td>Artificial Internal Organs</td>
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<td>PHGY 518</td>
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<td>Artificial Cells</td>
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<tr>
<td>PHGY 552</td>
<td>3</td>
<td>Cellular and Molecular Physiology</td>
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<td>PHGY 556</td>
<td>3</td>
<td>Topics in Systems Neuroscience</td>
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<td>PSYT 455</td>
<td>3</td>
<td>Neurochemistry</td>
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<tr>
<td>PSYT 500</td>
<td>3</td>
<td>Advances: Neurobiology of Mental Disorders</td>
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</tbody>
</table>

Revision, August 2011. End of revision.

12.14.2.6 Bachelor of Science (B.Sc.) - Honours Anatomy and Cell Biology (73 credits)

Revision, August 2011. Start of revision.

Students should register at the Major level in U1 and, if accepted, may enter the Honours program at the beginning of U2. To enter the program, the student must obtain a CGPA of at least 3.20 at the end of U1. For promotion to the U3 year of the Honours program, or for entry into the program at this level, the student must have a CGPA of at least 3.20 at the end of their U2 year. It is expected that at the beginning of the third year, the students who wish to continue in the Honours program will be those who feel that they are seriously interested in a career in Cell Biology. The Honours degree will be recommended after successful completion of the program with a CGPA of at least 3.20.

Required Courses (52 credits)

Note: ANAT 261 must be taken in U1.

* Students who have taken the equivalent of CHEM 212, CHEM 222, and/or MATH 203 in CEGEP (as defined at http://www.mcgill.ca/students/courses/plan/transfer/) are exempt and must replace these credits with elective course credits to satisfy the total credit requirement for their degree.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 212</td>
<td>3</td>
<td>Molecular Mechanisms of Cell Function</td>
</tr>
<tr>
<td>ANAT 214</td>
<td>3</td>
<td>Systemic Human Anatomy</td>
</tr>
<tr>
<td>ANAT 261</td>
<td>4</td>
<td>Introduction to Dynamic Histology</td>
</tr>
<tr>
<td>ANAT 262</td>
<td>3</td>
<td>Introductory Molecular and Cell Biology</td>
</tr>
<tr>
<td>ANAT 432</td>
<td>9</td>
<td>Honours Research Project</td>
</tr>
<tr>
<td>BIOL 200</td>
<td>3</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>3</td>
<td>Basic Genetics</td>
</tr>
<tr>
<td>BIOL 301</td>
<td>4</td>
<td>Cell and Molecular Laboratory</td>
</tr>
<tr>
<td>CHEM 212*</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 222*</td>
<td>4</td>
<td>Introductory Organic Chemistry 2</td>
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<tr>
<td>MIMM 314</td>
<td>3</td>
<td>Immunology</td>
</tr>
<tr>
<td>PHGY 209</td>
<td>3</td>
<td>Mammalian Physiology 1</td>
</tr>
<tr>
<td>PHGY 210</td>
<td>3</td>
<td>Mammalian Physiology 2</td>
</tr>
</tbody>
</table>
One of the following statistics courses:

BIOL 373 (3) Biometry
MATH 203* (3) Principles of Statistics 1
PSYC 204 (3) Introduction to Psychological Statistics

**Complementary Courses (21 credits)**

Complementary courses are selected as follows with a minimum of 6 credits at the 400 level or higher:

18 credits selected from:

* Note: Students may take either ANAT 321 OR ANAT 323.

ANAT 321* (3) Circuitry of the Human Brain
ANAT 322 (3) Neuroendocrinology
ANAT 323* (3) Neuroanatomy
ANAT 365 (3) Cellular Trafficking
ANAT 381 (3) Basis of Embryology
ANAT 416 (3) Development, Disease and Regeneration
ANAT 458 (3) Membranes and Cellular Signaling
ANAT 541 (3) Cell and Molecular Biology of Aging
ANAT 565 (3) Diseases-Membrane Trafficking
NEUR 310 (3) Cellular Neurobiology

3 credits of biologically oriented courses (BOC) selected from:

ANAT 322 (3) Neuroendocrinology
ANAT 365 (3) Cellular Trafficking
ANAT 381 (3) Basis of Embryology
ANAT 416 (3) Development, Disease and Regeneration
ANAT 432 (9) Honours Research Project
ANAT 458 (3) Membranes and Cellular Signaling
ANAT 541 (3) Cell and Molecular Biology of Aging
ANAT 565 (3) Diseases-Membrane Trafficking
BIOC 311 (3) Metabolic Biochemistry
BIOC 312 (3) Biochemistry of Macromolecules
BIOC 450 (3) Protein Structure and Function
BIOC 458 (3) Membranes and Cellular Signaling
BIOC 503 (3) Immunochemistry
BIOL 300 (3) Molecular Biology of the Gene
BIOL 301 (4) Cell and Molecular Laboratory
BIOL 303 (3) Developmental Biology
BIOL 306 (3) Neural Basis of Behaviour
BIOL 313 (3) Eukaryotic Cell Biology
BIOL 314 (3) Molecular Biology of Oncogenes
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<tr>
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<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 370</td>
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<td>Human Genetics Applied</td>
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<td>BIOL 514</td>
<td>3</td>
<td>Neurobiology Learning and Memory</td>
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<td>BIOL 518</td>
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<td>BIOL 520</td>
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<td>Gene Activity in Development</td>
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<td>BIOL 524</td>
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<td>Topics in Molecular Biology</td>
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<td>BIOL 532</td>
<td>3</td>
<td>Developmental Neurobiology Seminar</td>
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<td>BIOL 544</td>
<td>3</td>
<td>Genetic Basis of Life Span</td>
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<td>BIOL 551</td>
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<td>Advances in Molecular/Cellular Neurobiology</td>
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<tr>
<td>BIOT 505</td>
<td>3</td>
<td>Selected Topics in Biotechnology</td>
</tr>
<tr>
<td>EXMD 401</td>
<td>3</td>
<td>Physiology and Biochemistry Endocrine Systems</td>
</tr>
<tr>
<td>EXMD 502</td>
<td>3</td>
<td>Advanced Endocrinology 01</td>
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<td>EXMD 503</td>
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<td>EXMD 504</td>
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<td>Biology of Cancer</td>
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<td>Advanced Topics in Respiration</td>
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<td>MIMM 465</td>
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<td>Inflammatory Processes</td>
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<td>NEUR 310</td>
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<td>Cellular Neurobiology</td>
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<td>PATH 300</td>
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<td>Human Disease</td>
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<td>PHAR 300</td>
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<td>Drug Action</td>
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<td>PHAR 301</td>
<td>3</td>
<td>Drugs and Disease</td>
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<tr>
<td>PHAR 303</td>
<td>3</td>
<td>Principles of Toxicology</td>
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<td>PHAR 562</td>
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<td>PHGY 513</td>
<td>3</td>
<td>Cellular Immunology</td>
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<tr>
<td>PHGY 515</td>
<td>3</td>
<td>Physiology of Blood 1</td>
</tr>
</tbody>
</table>
12.14.3 Atmospheric and Oceanic Sciences (ATOC)

12.14.3.1 Location

Burnside Hall, Room 945
805 Sherbrooke Street West
Montreal, Quebec H3A 2K6

Telephone: 514-398-3764
Fax: 514-398-6115
Email: undergraduateinfo@meteo.mcgill.ca
Website: www.mcgill.ca/meteo

12.14.3.2 About Atmospheric and Oceanic Sciences

The Department of Atmospheric and Oceanic Sciences offers, at the undergraduate level, a broad range of courses and degree programs in atmospheric science (meteorology). At the postgraduate level, programs of study are offered in physical oceanography, air-sea interaction, and climate research as well as in different branches of atmospheric science. The study of atmospheric science is based largely on physics and applied mathematics. All required courses except those at the introductory level generally have prerequisites or corequisites in physics, mathematics, and atmospheric science. One of the goals of the discipline is to develop the understanding necessary to improve our ability to predict the weather, but atmospheric science is more than weather forecasting.

Another important area of study focuses on the possible changes in global climate caused by the changing chemical composition of the atmosphere. The approach is always quantitative. Like other parts of physics, atmospheric science attempts to create theoretical models of its complex processes, as a means of analyzing the motion and composition of the air, its thermodynamic behaviour, and its interaction with radiation and with the solid or liquid surface beneath it.

From one viewpoint, the atmosphere may be studied as a large volume of gas by the methods of fluid mechanics: winds, circulation patterns, turbulence, and energy and momentum exchanges are the ideas employed in this approach. Alternatively, the atmosphere may be studied from the point of view of its detailed physics: how water condenses in the air, how cloud droplets make rain, how sunlight warms the ground and the ground warms the air above it by radiation and convection, and how the atmosphere and ocean interact to shape the weather and climate. A comprehensive understanding requires both viewpoints, and these are reflected in the curriculum.

The Department of Atmospheric and Oceanic Sciences offers four main programs in Atmospheric Science: Honours, Major, Minor, and a Joint Major in Atmospheric Science and Physics. The Honours program is meant for students with high standing. It is based on courses similar to those in the Major program, but provides the opportunity to take advanced optional courses. The Major program, although somewhat less intensive, satisfies the requirements for a professional career as a meteorologist, and like the Honours program equips the student to undertake postgraduate study in meteorology, atmospheric science, and related sciences (physical oceanography) at any of the leading universities. The Department also offers a special one-year Diploma program to B.Sc. or B.Eng. graduates.

A degree in Atmospheric Science can lead to a professional career in government service or private industry. The Meteorological Service of Canada has traditionally been the main employer of graduating students, but certain provincial governments and environmental consulting and engineering firms also employ graduates trained in atmospheric science. Positions in teaching and research are available to graduates with M.Sc. and Ph.D. degrees. Students interested in any of the undergraduate programs should consult the undergraduate adviser, Room 946, Burnside Hall.

12.14.3.3 Atmospheric and Oceanic Sciences (ATOC) Faculty

Chair

John R. Gyakum

Emeritus Professors

Jacques F. Derome; M.Sc.(McG.), Ph.D.(Mich.), F.R.S.C.
### Emeritus Professors
- Henry G. Leighton; M.Sc.(McG.), Ph.D.(Alta.)
- Lawrence A. Mysak; B.Sc.(Alta.), M.Sc.(Adel.), A.M., Ph.D.(Harv.), F.R.S.C.
- Roddy R. Rogers; B.S.(Texas), S.M.(MIT), Ph.D.(NYU)
- Edward J. Stansbury; M.A., Ph.D.(Tor.)
- Isztar I. Zawadzki; B.Sc.(Buenos Aires), M.Sc., Ph.D.(McG.), F.R.S.C.

### Professors
- John R. Gyakum; B.Sc.(Penn.), M.Sc., Ph.D.(MIT)
- Man Kong (Peter) Yau; S.B., S.M., Sc.D.(MIT)

### Associate Professors
- Parisa Ariya; B.Sc., Ph.D.(York) (*William Dawson Scholar* (*joint appt. with Chemistry*)
- Peter Bartello; M.Sc., Ph.D.(McG.) (*joint appt. with Mathematics and Statistics*)
- Frédéric Fabry; B.Sc., M.Sc., Ph.D.(McG.) (*joint appt. with McGill School of Environment*)
- David Straub; B.S., M.S.(SW Louisiana), Ph.D.(Wash.)
- Bruno Tremblay; B.Sc.(McG.), M.Sc.(Car.), Ph.D.(McG.)

### Assistant Professors
- Michel Bourqui; B.Sc., M.Sc.(EPFL, Switzerland), Ph.D.(ETHZ, Switzerland) (*joint appt. with Chemistry*)
- Yi Huang; B.S., M.S.(Pekin), Ph.D.(Princ.)
- Pavlos Kollias; B.Sc., M.Sc.(Athens), Ph.D.(Miami) (*Canada Research Chair*)
- Jaime Palter; B.Sc., Ph.D.(Duke)
- Seok-Woo Son; B.Sc., M.Sc.(Seoul National), Ph.D.(Penn.)

### Adjunct Professors
- Pierre Gauthier; Ph.D.(McG.)
- Charles A. Lin; B.Sc.(Br. Col.), Ph.D.(MIT)
- Hai Lin; Ph.D.(McG.)
- Damon Matthews; Ph.D.(Vic., BC)
- Stella Melo; Ph.D.(INPE)
- Ronald Stewart; Ph.D.(Tor.)

### Bachelor of Science (B.Sc.) - Minor Atmospheric Science (18 credits)

This Minor may be taken in conjunction with any program in the Faculty of Science.

### Required Courses (15 credits)

<table>
<thead>
<tr>
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Either of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ATOC 219</td>
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Introduction: Physics of the Atmosphere

Oceans, Weather and Climate

Weather Radars and Satellites

Thermodynamics and Convection

Introduction to Atmospheric Chemistry
CHEM 219  (3)  Introduction to Atmospheric Chemistry

**Complementary Course (3 credits)**

One of the following courses:

- ATOC 412  (3)  Atmospheric Dynamics
- ATOC 540  (3)  Synoptic Meteorology 1

---

**12.14.3.5 Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Atmospheric and Oceanic Sciences (46 credits)**

**Required Courses (37 credits)**

- ATOC 214  (3)  Introduction: Physics of the Atmosphere
- ATOC 215  (3)  Oceans, Weather and Climate
- ATOC 309  (3)  Weather Radars and Satellites
- ATOC 315  (3)  Thermodynamics and Convection
- ATOC 412  (3)  Atmospheric Dynamics
- ATOC 540  (3)  Synoptic Meteorology 1
- ATOC 546  (1)  Current Weather Discussion
- MATH 222  (3)  Calculus 3
- MATH 223  (3)  Linear Algebra
- MATH 314  (3)  Advanced Calculus
- MATH 315  (3)  Ordinary Differential Equations
- PHYS 230  (3)  Dynamics of Simple Systems
- PHYS 232  (3)  Heat and Waves

**Complementary Courses (9 credits)**

* Students may take either ATOC 419 or CHEM 419

- ATOC 419*  (3)  Advances in Chemistry of Atmosphere
- ATOC 521  (3)  Cloud Physics
- ATOC 525  (3)  Atmospheric Radiation
- ATOC 530  (3)  Paleoclimate Dynamics
- ATOC 531  (3)  Dynamics of Current Climates
- ATOC 541  (3)  Synoptic Meteorology 2
- CHEM 419*  (3)  Advances in Chemistry of Atmosphere
- COMP 208  (3)  Computers in Engineering
- MATH 203  (3)  Principles of Statistics 1
- MATH 319  (3)  Introduction to Partial Differential Equations
- PHYS 257  (3)  Experimental Methods 1
- PHYS 333  (3)  Thermal and Statistical Physics
- PHYS 340  (3)  Majors Electricity and Magnetism

---

**12.14.3.6 Bachelor of Science (B.Sc.) - Major Atmospheric Science (61 credits)**

**Required Courses (46 credits)**
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<td>Oceans, Weather and Climate</td>
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<td>ATOC 315</td>
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<td>ATOC 540</td>
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<td>PHYS 232</td>
<td>3</td>
<td>Heat and Waves</td>
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<td>PHYS 257</td>
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<td>Experimental Methods 1</td>
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**Complementary Courses (15 credits)**

3-6 credits to satisfy a statistics requirement.

Students usually take MATH 203 or both MATH 323 and MATH 324.

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3 credits selected from:

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<tr>
<td>PHYS 340</td>
<td>3</td>
<td>Majors Electricity and Magnetism</td>
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</table>

6-9 credits ordinarily selected from the courses below:

* Students may take either ATOC 419 or CHEM 419

** Students may take either PHYS 432 or MATH 555

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<tr>
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<tr>
<td>ATOC 515</td>
<td>3</td>
<td>Turbulence in Atmosphere and Oceans</td>
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<tr>
<td>ATOC 521</td>
<td>3</td>
<td>Cloud Physics</td>
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<td>ATOC 525</td>
<td>3</td>
<td>Atmospheric Radiation</td>
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<td>Advances in Chemistry of Atmosphere</td>
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<tr>
<td>GEOG 322</td>
<td>3</td>
<td>Environmental Hydrology</td>
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<td>GEOG 372</td>
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<td>Running Water Environments</td>
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<td>MATH 317</td>
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<tr>
<td>MATH 319</td>
<td>3</td>
<td>Introduction to Partial Differential Equations</td>
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<tr>
<td>MATH 423</td>
<td>3</td>
<td>Regression and Analysis of Variance</td>
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</table>
MATH 555** (4) Fluid Dynamics
PHYS 241 (3) Signal Processing
PHYS 331 (3) Topics in Classical Mechanics
PHYS 340 (3) Majors Electricity and Magnetism
PHYS 342 (3) Majors Electromagnetic Waves
PHYS 432** (3) Physics of Fluids

12.14.3.7 Bachelor of Science (B.Sc.) - Major Atmospheric Science - Atmospheric Chemistry (61 credits)

Required Courses (55 credits)
* Students take either ATOC 419 or CHEM 419.

ATOC 214 (3) Introduction: Physics of the Atmosphere
ATOC 215 (3) Oceans, Weather and Climate
ATOC 309 (3) Weather Radars and Satellites
ATOC 315 (3) Thermodynamics and Convection
ATOC 412 (3) Atmospheric Dynamics
ATOC 419* (3) Advances in Chemistry of Atmosphere
ATOC 540 (3) Synoptic Meteorology 1
ATOC 541 (3) Synoptic Meteorology 2
ATOC 546 (1) Current Weather Discussion
CHEM 223 (2) Introductory Physical Chemistry 1
CHEM 243 (2) Introductory Physical Chemistry 2
CHEM 253 (1) Introductory Physical Chemistry 1 Laboratory
CHEM 263 (1) Introductory Physical Chemistry 2 Laboratory
CHEM 419* (3) Advances in Chemistry of Atmosphere
COMP 208 (3) Computers in Engineering
MATH 222 (3) Calculus 3
MATH 223 (3) Linear Algebra
MATH 314 (3) Advanced Calculus
MATH 315 (3) Ordinary Differential Equations
PHYS 230 (3) Dynamics of Simple Systems
PHYS 232 (3) Heat and Waves
PHYS 257 (3) Experimental Methods 1

Complementary Courses (6 credits)

3 credits to satisfy a statistics requirement.
Students usually take MATH 203 or MATH 324.

MATH 203 (3) Principles of Statistics 1
MATH 324 (3) Statistics

3 credits selected from the courses below:

ATOC 515 (3) Turbulence in Atmosphere and Oceans
Bachelor of Science (B.Sc.) – Major Atmospheric Science and Physics (67 credits)

Revision, August 2011. Start of revision.

This Major provides a solid basis for postgraduate study in meteorology, atmospheric physics, or related fields, as well as the necessary preparation for embarking on a professional career as a meteorologist directly after the B.Sc.

The program is jointly administered by the Department of Physics and the Department of Atmospheric and Oceanic Sciences. Students should consult undergraduate advisers in both departments.

Required Courses (64 credits)

- ATOC 214 (3) Introduction: Physics of the Atmosphere
- ATOC 215 (3) Oceans, Weather and Climate
- ATOC 309 (3) Weather Radars and Satellites
- ATOC 315 (3) Thermodynamics and Convection
- ATOC 412 (3) Atmospheric Dynamics
- ATOC 540 (3) Synoptic Meteorology 1
- ATOC 541 (3) Synoptic Meteorology 2
- ATOC 546 (1) Current Weather Discussion
- MATH 222 (3) Calculus 3
- MATH 223 (3) Linear Algebra
- MATH 314 (3) Advanced Calculus
- MATH 315 (3) Ordinary Differential Equations
- PHYS 230 (3) Dynamics of Simple Systems
- PHYS 232 (3) Heat and Waves
- PHYS 257 (3) Experimental Methods 1
- PHYS 258 (3) Experimental Methods 2
- PHYS 331 (3) Topics in Classical Mechanics
- PHYS 333 (3) Thermal and Statistical Physics
- PHYS 339 (3) Measurements Laboratory in General Physics
- PHYS 340 (3) Majors Electricity and Magnetism
- PHYS 342 (3) Majors Electromagnetic Waves
Complementary Course (3 credits)
Students select one of the following courses:

- PHYS 432 (3)  Physics of Fluids
- PHYS 434 (3)  Optics
- PHYS 439 (3)  Majors Laboratory in Modern Physics

Revision, August 2011. End of revision.

12.14.3.9 Bachelor of Science (B.Sc.) - Honours Atmospheric Science (70 credits)

Students can be admitted to the Honours program after completion of the U1 year of the Major in Atmospheric Science program with a minimum GPA of 3.30. Students having completed a U1 year in a different program with high standing may be admitted to the Honours program on the recommendation of that department.

A minimum GPA of 3.30 in the Honours program courses (taken as a whole) is required to remain in the program. A CGPA of 3.30 on the total program is also required to graduate with honours.

Required Courses (52 credits)

- ATOC 214 (3)  Introduction: Physics of the Atmosphere
- ATOC 215 (3)  Oceans, Weather and Climate
- ATOC 309 (3)  Weather Radars and Satellites
- ATOC 315 (3)  Thermodynamics and Convection
- ATOC 480 (3)  Honours Research Project
- ATOC 512 (3)  Atmospheric and Oceanic Dynamics
- ATOC 531 (3)  Dynamics of Current Climates
- ATOC 540 (3)  Synoptic Meteorology 1
- ATOC 546 (1)  Current Weather Discussion
- COMP 208 (3)  Computers in Engineering
- MATH 222 (3)  Calculus 3
- MATH 223 (3)  Linear Algebra
- MATH 314 (3)  Advanced Calculus
- MATH 315 (3)  Ordinary Differential Equations
- MATH 319 (3)  Introduction to Partial Differential Equations
- PHYS 230 (3)  Dynamics of Simple Systems
- PHYS 232 (3)  Heat and Waves
- PHYS 257 (3)  Experimental Methods 1

Complementary Courses (18 credits)

3-6 credits to satisfy a statistics requirement.
Students usually take MATH 203 or both MATH 323 and MATH 324.

- MATH 203 (3)  Principles of Statistics 1
- MATH 323 (3)  Probability
- MATH 324 (3)  Statistics
3 credits selected from:

<table>
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<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 333</td>
<td>3</td>
<td>Thermal and Statistical Physics</td>
</tr>
<tr>
<td>PHYS 340</td>
<td>3</td>
<td>Majors Electricity and Magnetism</td>
</tr>
</tbody>
</table>

3-6 credits ordinarily selected from the courses below:

* Students may take either ATOC 419 or CHEM 419
** Students may take either PHYS 432 or MATH 555

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>ATOC 419</td>
<td>3</td>
<td>Advances in Chemistry of Atmosphere</td>
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<td>ATOC 515</td>
<td>3</td>
<td>Turbulence in Atmosphere and Oceans</td>
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<td>CHEM 419</td>
<td>3</td>
<td>Advances in Chemistry of Atmosphere</td>
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<td>GEOG 322</td>
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<td>MATH 317</td>
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12.14.3.10 Bachelor of Science (B.Sc.) - Honours Atmospheric Science - Atmospheric Chemistry (70 credits)

Required Courses (61 credits)

* Students take either ATOC 419 or CHEM 419.

<table>
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<td>ATOC 419*</td>
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**Complementary Courses (9 credits)**

3 credits to satisfy a statistics requirement.

Students usually take MATH 203 or MATH 324.

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</tbody>
</table>
The Department offers an intensive, one-year program in theoretical and applied meteorology to B.Sc. or B.Eng. graduates of suitable standing in physics, applied mathematics or other appropriate disciplines, leading to a Diploma in Meteorology. The program is designed for students with little or no previous background in meteorology who wish to direct their experience to atmospheric or environmental applications, or who need to fulfil academic prerequisites in meteorology to qualify for employment. For further information, consult the Administrative Officer, Burnside Hall, Room 946.

An exemption of up to 6 credits may be allowed for courses already taken. Students granted such exemptions are required to add complementary courses from an approved list to maintain a total credit count of 30 completed at McGill.

### Required Courses (15 credits)

- ATOC 512 (3) Atmospheric and Oceanic Dynamics
- ATOC 521 (3) Cloud Physics
- ATOC 531 (3) Dynamics of Current Climates
- ATOC 540 (3) Synoptic Meteorology 1
- ATOC 541 (3) Synoptic Meteorology 2

### Complementary Courses (15 credits)

6 credits selected from the courses below.

* Students take either ATOC 419 or CHEM 419.

- ATOC 309 (3) Weather Radars and Satellites
- ATOC 315 (3) Thermodynamics and Convection
- ATOC 419* (3) Advances in Chemistry of Atmosphere
- CHEM 419* (3) Advances in Chemistry of Atmosphere

9 credits ordinarily selected from:

* Students take either PHYS 432 or MATH 555.

- ATOC 513 (3) Waves and Stability
- ATOC 515 (3) Turbulence in Atmosphere and Oceans
- ATOC 525 (3) Atmospheric Radiation
- ATOC 530 (3) Paleoclimate Dynamics
- GEOG 522 (3) Advanced Environmental Hydrology
- MATH 317 (3) Numerical Analysis
- MATH 319 (3) Introduction to Partial Differential Equations
- MATH 555* (4) Fluid Dynamics
- PHYS 331 (3) Topics in Classical Mechanics
- PHYS 340 (3) Majors Electricity and Magnetism
- PHYS 342 (3) Majors Electromagnetic Waves
- PHYS 432* (3) Physics of Fluids

### 12.14.3.12 Atmospheric and Oceanic Sciences (ATOC) Related Programs

**12.14.3.12.1 Internship Year in Science (IYS)**

IYS is a pregraduate work experience program available to eligible students and normally taken between their U2 and U3 years. For more information, see section 12.11.5: Internship Programs – Industrial Practicum (IP) and Internship Year in Science (IYS).
The following programs are also available with an internship component:

Major in Atmospheric Science
Honours in Atmospheric Science

A Science major concentration in Earth, Atmosphere and Ocean Sciences is available to students pursuing the B.A. & Sc. degree. This Major concentration is described in the Bachelor of Arts and Science section of this publication; see section 12.14.10: Earth, Atmosphere and Ocean Sciences for details.

12143122 Earth System Science Interdepartmental Major

This program is offered by the Department of Atmospheric & Oceanic Sciences, Earth & Planetary Sciences, and Geography.

Students in the Department of Atmospheric & Oceanic Sciences interested in this program should contact Professor Bruno Tremblay (bruno.tremblay@mcgill.ca). For more information, see section 12.14.11: Earth System Science Interdepartmental Major (ESYS).

12.14.4 Biochemistry (BIOC)

12.14.4.1 Location
McIntyre Medical Building, 9th Floor
3655 Promenade Sir-William-Osler
Montreal, Quebec H3G 1Y6

Christine Laberge, Student Affairs Officer
Telephone: 514-398-2423
Email: christine.laberge@mcgill.ca
Website: www.mcgill.ca/biochemistry

12.14.4.2 About Biochemistry

Biochemistry is the application of chemical, genetic and biophysical approaches to the study of biological processes at the cellular and molecular level. We are interested in, for example, mechanisms of brain function; cellular differentiation; energy utilization by animals and microorganisms; and in the molecular basis of inheritance and disease. The researcher seeks to determine how specific molecules such as proteins, nucleic acids, lipids, vitamins, and hormones function in various cellular processes. Particular emphasis is placed on the regulation of reactions in living cells. The knowledge and methods developed by researchers are applied in all fields of medicine, in agriculture, and in many chemical and health-related industries. Biochemistry is unique in providing basic theoretical training, as well as basic practical laboratory training and research in both enzymology and genetic engineering, which are the two basic components in the rapidly expanding field of Biotechnology.

There are three programs offered by the Department of Biochemistry: Major, Honours, and Liberal. The Major and Honours programs provide a sound background for students who wish to have a professional career in biochemistry, and can lead to postgraduate studies and research careers in hospital, university, or industrial laboratories. The Liberal program is less specialized, offering students opportunities to select courses in other fields of interest.

During the first year, each program provides basic training in organic, physical, and analytical chemistry, as well as in biology and physiology. The Honours and Major programs become more specialized in biochemistry during the following two years, with additional work in chemistry and biology.

Students interested in pursuing an ad hoc Joint Major or Joint Honours degree between Biochemistry and a second discipline may consult with our Chief Academic Adviser, Dr. Albert Berghuis (albert.berghuis@mcgill.ca).

The increasing involvement of complex technology in modern society requires personnel trained in both chemistry and biology. With the advent of biotechnology, the combination of chemistry, molecular biology, enzymology, and genetic engineering found in the biochemistry program provides the essential background and training. The researcher is in an advantageous position to fulfill this role and assume a wide variety of positions in industry and the health field. These positions include: research and development in the chemical and pharmaceutical industries; testing and research in government and hospital laboratories; and management. Many graduates pursue higher degrees in research and attain academic positions in universities and colleges.

12.14.4.3 Adviser

New students interested in Biochemistry should refer to our website for information regarding orientation and program advising: www.mcgill.ca/biochemistry/undergraduates/advising.

Returning students must schedule an advising appointment directly with the academic adviser assigned to them in their first year in Biochemistry.

12.14.4.4 Biochemistry (BIOC) Faculty

Chair & Professor
David Y. Thomas; B.Sc.(Brist.), M.Sc., Ph.D.(Univ. Coll., Lond.), F.R.S.C. (Canada Research Chair in Molecular Genetics)

Associate Chair & Professor
Kalle Gehring; B.A.(Brown), M.Sc.(Mich.), Ph.D.(Calif., Berk.) (Chercheur National du FRSQ)
Emeritus Professors

Rhoda Blostein; B.Sc., M.Sc., Ph.D.(McG.), F.R.S.C. (joint appt. with Medicine)
Peter E. Braun; B.Sc., M.Sc.(Br. Col.), Ph.D.(Calif., Berk.)
Robert E. MacKenzie; B.Sc.(Agr.(McG.), M.N.S., Ph.D.(C'nell.)
Edward A. Meighen; B.Sc.(Alta.), Ph.D.(Calif., Berk.)
Walter E. Mushynski; B.Sc., Ph.D.(McG.)
Theodore L. Sourkes; M.Sc.(McG.), Ph.D.(C'nell), F.R.S.C.
Clifford P. Stanners; B.Sc.(McM.), M.A., Ph.D.(Tor.)

Professors

Nicole Beauchemin; B.Sc., M.Sc., Ph.D.(Montr.) (joint appt. with Oncology and Medicine)
Albert Berghuis; B.Sc., M.Sc.(Rijks Univ. Groningen, The Netherlands), Ph.D.(Br. Col.) (Canada Research Chair in Structural Biology)
Philip E. Branton; B.Sc., M.Sc., Ph.D.(Tor.), F.R.S.C. (Gilman Cheney Professor of Biochemistry)
Vincent Giguère; B.Sc., Ph.D.(Laval) (joint appt. with Oncology and Medicine)
Philippe Gros; B.Sc., M.Sc.(Montr.), Ph.D.(McG.), F.R.S.C. (James McGill Professor)
Roderick McInnes; B.Sc., M.D.(Dal.), Ph.D.(McG.) (Canada Research Chair in Neurogenetics) (joint appt. with Human Genetics)
William Muller; B.Sc., Ph.D.(McG.) (Canada Research Chair in Molecular Oncoiology)
Alain Nepveu; B.Sc., M.Sc.(Montr.), Ph.D.(Sher.) (James McGill Professor) (joint appt. with Oncology and Medicine)
Morag Park; B.Sc., Ph.D.(Glasgow), F.R.S.C. (Diane & Sal Guerrera Chair in Cancer Genetics) (James McGill Professor) (joint appt. with Oncology and Medicine)
Jerry Pelletier; B.Sc., Ph.D.(McG.) (James McGill Professor)
Gordon C. Shore; B.Sc.(Guelph), Ph.D.(McG.)
Joseph Shuster; B.Sc.(McG.), Ph.D.(Calif.), M.D.(Alta.)
John R. Silvius; B.Sc., Ph.D.(Alta.)
Nahum Sonenberg; M.Sc., Ph.D.(Weizmann Inst.), F.R.S.C., F.R.S. (James McGill Professor)
Michel L. Tremblay; B.Sc., M.Sc.(Sher.), Ph.D.(McM.), F.R.S.C. (James McGill Professor) (Jeanne & Jean-Louis Levesque Chair in Cancer Research)
Maria Zannis-Hadjopoulos; B.Sc., M.Sc., Ph.D.(McG.) (joint appt. with Oncology and Medicine)

Associate Professors

Maxime Bouchard; B.Sc., Ph.D.(Laval) (Canada Research Chair in Kidney Disease)
Imed Gallouzi; Maitrise, DEA, Ph.D.(Montpellier, France) (Canada Research Chair in Cellular Information Systems)
Arnim Pause; B.Sc., M.Sc.(U. Konstanz, Germ.), Ph.D.(McG.) (Canada Research Chair in Molecular Oncology)
Jason C. Young; B.Sc.(Tor.), Ph.D.(McM.) (Canada Research Chair in Molecular Chaperones)

Assistant Professors

Josée Dostie; B.Sc.(Sher.), Ph.D.(McG.) (CIHR New Investigators Award; Chercheur Boursier du FRSQ)
Thomas Duchaine; B.Sc., Ph.D.(Montr.) (Chercheur Boursier du FRSQ)
Bhushan Nagar; B.Sc., Ph.D.(Tor.) (Canada Research Chair in the Structural Biology of Signal Transduction)
Martin Schmeing; B.Sc.(McG.), Ph.D.(Yale)
Julie St-Pierre; B.Sc., M.Sc.(Laval), Ph.D.(Camb.)
Jose Teodoro; B.Sc.(W. Ont.), Ph.D.(McG.) (CIHR New Investigators Award; Chercheur Boursier du FRSQ)

Associate Members

Karine Auclair (Chemistry)
Jacques Genest (Medicine)
Associate Members

Matthias Götte (Microbiology and Immunology)
Michael Hallett (Bioinformatics)
Qutayba Hamid (Medicine and Pathology Meakins-Christie Labs)
Robert Scott Kiss (Medicine)
Gregory Miller (Pharmacology & Therapeutics)
Vassilios Papadopoulos (Medicine)
Janusz Rak (Pediatrics)
Reza Salavati (Parasitology)
Maya Saleh (Medicine)
Erwin Schurr (Ct. for Study of Host Resistance, MGH)
Peter Siegel (Medicine)
Youla Tsantrizos (Chemistry)
Bernard Turcotte (Medicine)
Simon Wing (Medicine)
Xiang-Jiao Yang (Medicine)

Adjunct Professors

Mirek Cygler (NRC/BRI)
Jacques Drouin (IRCM)
Anny Fortin (Dafra Pharma)
Tarik Möröy (IRCM)
Donald Nicholson (Merck Frosst)
Maureen D. O'Connor-McCourt (NRC/BRI)
Enrico Purisima (NRC/BRI)
René Roy (UQAM)
Alex Therien (Merck Frosst)

12.14.4.5 Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Biochemistry (47 credits)

U1 Required Courses (20 credits)

* Students with CEGEP-level credit for CHEM 212 and/or CHEM 222 should replace these courses with elective courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC 212</td>
<td>Molecular Mechanisms of Cell Function</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 200</td>
<td>Molecular Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>Basic Genetics</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 204</td>
<td>Physical Chemistry/Biological Sciences 1</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 212*</td>
<td>Introductory Organic Chemistry 1</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 222*</td>
<td>Introductory Organic Chemistry 2</td>
<td>4</td>
</tr>
</tbody>
</table>

U1 Complementary Courses** (6 credits)

** Complementary courses listed for U1 and U2 may be taken in later years if necessary to accommodate courses that must be taken in U1 and U2 as part of the breadth component of the program.

6 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 205</td>
<td>Biology of Organisms</td>
<td>3</td>
</tr>
</tbody>
</table>
### U1 Required Courses (23 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC 212</td>
<td>3</td>
<td>Molecular Mechanisms of Cell Function</td>
</tr>
<tr>
<td>BIOL 200</td>
<td>3</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>3</td>
<td>Basic Genetics</td>
</tr>
<tr>
<td>CHEM 204</td>
<td>3</td>
<td>Physical Chemistry/Biological Sciences 1</td>
</tr>
<tr>
<td>CHEM 212*</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 222*</td>
<td>4</td>
<td>Introductory Organic Chemistry 2</td>
</tr>
<tr>
<td>CHEM 287</td>
<td>2</td>
<td>Introductory Analytical Chemistry</td>
</tr>
<tr>
<td>CHEM 297</td>
<td>1</td>
<td>Introductory Analytical Chemistry Laboratory</td>
</tr>
</tbody>
</table>

*Note: Students with CEGEP-level credit for the equivalents of CHEM 212 and/or CHEM 222 (see http://www.mcgill.ca/students/courses/plan/transfer/ for accepted equivalents) may not take these courses at McGill and should replace them with elective courses to satisfy the total credit requirement for their degree.

### U1 Complementary Courses (6 credits)

3 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 373</td>
<td>3</td>
<td>Biometry</td>
</tr>
<tr>
<td>COMP 202</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>MATH 203</td>
<td>3</td>
<td>Principles of Statistics 1</td>
</tr>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>PSYC 204</td>
<td>3</td>
<td>Introduction to Psychological Statistics</td>
</tr>
</tbody>
</table>

### U2 Required Courses (15 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC 300D1</td>
<td>3</td>
<td>Laboratory in Biochemistry</td>
</tr>
<tr>
<td>BIOC 300D2</td>
<td>3</td>
<td>Laboratory in Biochemistry</td>
</tr>
<tr>
<td>BIOC 311</td>
<td>3</td>
<td>Metabolic Biochemistry</td>
</tr>
<tr>
<td>BIOC 312</td>
<td>3</td>
<td>Biochemistry of Macromolecules</td>
</tr>
<tr>
<td>CHEM 302</td>
<td>3</td>
<td>Introductory Organic Chemistry 3</td>
</tr>
</tbody>
</table>

### U2 Complementary Courses** (3 credits)

**Complementary courses listed for U1 and U2 may be taken in later years if necessary to accommodate courses that must be taken in U1 and U2 as part of the breadth component of the program.

3 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 373</td>
<td>3</td>
<td>Biometry</td>
</tr>
<tr>
<td>COMP 202</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>MATH 203</td>
<td>3</td>
<td>Principles of Statistics 1</td>
</tr>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>PSYC 204</td>
<td>3</td>
<td>Introduction to Psychological Statistics</td>
</tr>
</tbody>
</table>

### U3 Complementary Courses (3 credits)

3 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC 450</td>
<td>3</td>
<td>Protein Structure and Function</td>
</tr>
<tr>
<td>BIOC 454</td>
<td>3</td>
<td>Nucleic Acids</td>
</tr>
</tbody>
</table>

### 12.14.4.6 Bachelor of Science (B.Sc.) - Major Biochemistry (67 credits)

Revision, August 2011. Start of revision.

Students may transfer into the Major program at any time, provided they have met all course requirements.
6 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 205</td>
<td>(3)</td>
<td>Biology of Organisms</td>
</tr>
<tr>
<td>MIMM 211</td>
<td>(3)</td>
<td>Introductory Microbiology</td>
</tr>
<tr>
<td>PHGY 209</td>
<td>(3)</td>
<td>Mammalian Physiology 1</td>
</tr>
<tr>
<td>PHGY 210</td>
<td>(3)</td>
<td>Mammalian Physiology 2</td>
</tr>
</tbody>
</table>

**U2 Required Courses (23 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 262</td>
<td>(3)</td>
<td>Introductory Molecular and Cell Biology</td>
</tr>
<tr>
<td>BIOC 300D1</td>
<td>(3)</td>
<td>Laboratory in Biochemistry</td>
</tr>
<tr>
<td>BIOC 300D2</td>
<td>(3)</td>
<td>Laboratory in Biochemistry</td>
</tr>
<tr>
<td>BIOC 311</td>
<td>(3)</td>
<td>Metabolic Biochemistry</td>
</tr>
<tr>
<td>BIOC 312</td>
<td>(3)</td>
<td>Biochemistry of Macromolecules</td>
</tr>
<tr>
<td>CHEM 214</td>
<td>(3)</td>
<td>Physical Chemistry/Biological Sciences 2</td>
</tr>
<tr>
<td>CHEM 302</td>
<td>(3)</td>
<td>Introductory Organic Chemistry 3</td>
</tr>
<tr>
<td>CHEM 362</td>
<td>(2)</td>
<td>Advanced Organic Chemistry Laboratory</td>
</tr>
</tbody>
</table>

**U2 Complementary Courses (3 credits)**

3 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 309</td>
<td>(3)</td>
<td>Mathematical Models in Biology</td>
</tr>
<tr>
<td>BIOL 373</td>
<td>(3)</td>
<td>Biometry</td>
</tr>
<tr>
<td>COMP 202</td>
<td>(3)</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>MATH 203</td>
<td>(3)</td>
<td>Principles of Statistics 1</td>
</tr>
<tr>
<td>MATH 222</td>
<td>(3)</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>PSYC 204</td>
<td>(3)</td>
<td>Introduction to Psychological Statistics</td>
</tr>
</tbody>
</table>

**U3 Required Courses (6 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC 450</td>
<td>(3)</td>
<td>Protein Structure and Function</td>
</tr>
<tr>
<td>BIOC 454</td>
<td>(3)</td>
<td>Nucleic Acids</td>
</tr>
</tbody>
</table>

**U3 Complementary Courses (6 credits)**

At least 3 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC 404</td>
<td>(3)</td>
<td>Biophysical Chemistry</td>
</tr>
<tr>
<td>BIOC 458</td>
<td>(3)</td>
<td>Membranes and Cellular Signaling</td>
</tr>
<tr>
<td>BIOC 503</td>
<td>(3)</td>
<td>Immunochemistry</td>
</tr>
<tr>
<td>PSYT 455</td>
<td>(3)</td>
<td>Neurochemistry</td>
</tr>
</tbody>
</table>

The remainder, if any, to be selected from the following list:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC 570</td>
<td>(3)</td>
<td>Biochemistry of Lipoproteins</td>
</tr>
<tr>
<td>BIOL 300</td>
<td>(3)</td>
<td>Molecular Biology of the Gene</td>
</tr>
<tr>
<td>BIOL 303</td>
<td>(3)</td>
<td>Developmental Biology</td>
</tr>
</tbody>
</table>
**Evolution (3)**
**BIOL 304**

**Eukaryotic Cell Biology (3)**
**BIOL 313**

**Molecular Biology of Oncogenes (3)**
**BIOL 314**

**Structural Organic Chemistry (3)**
**CHEM 352**

**Organic Chemistry: Natural Products (3)**
**CHEM 382**

**Advanced Bio-Organic Chemistry (3)**
**CHEM 502**

**Physical Organic Chemistry (3)**
**CHEM 552**

**Synthetic Organic Chemistry (3)**
**CHEM 572**

**Advanced Endocrinology 01 (3)**
**EXMD 502**

**Immunology (3)**
**MIMM 314**

**Fundamental Virology (3)**
**MIMM 324**

**Drug Action (3)**
**PHAR 300**

**Channels, Synapses & Hormones (3)**
**PHGY 311**

---

**Revision, August 2011. End of revision.**

**12.14.4.7 Bachelor of Science (B.Sc.) - Honours Biochemistry (76 credits)**

**Revision, August 2011. Start of revision.**

Admission to the Honours program will not be granted until U2. Students who wish to enter the Honours program in U2 should follow the U1 Major program. Those who satisfactorily complete the U1 Major program with a GPA of at least 3.20 and a mark of B- or better in every required course are eligible for admission to the Honours program.

Students seeking admission to the Honours program must obtain permission from the Departmental Student Affairs Officer, Christine Laberge (christine.laberge@mcgill.ca), during the Add/Drop period in September of their second year.

Promotion to U3 year is based on satisfactory completion of U2 courses with a GPA of at least 3.20 and a mark of B- or better in every required course. In borderline cases, the marks received in BIOC 311 and BIOC 312 will be of particular importance for continuation in the U3 Honours year.

For graduation in the Honours program, students must complete a minimum of 90 credits, pass all required courses with no grade less than B-, and achieve a CGPA of at least 3.20.

**U1 Required Courses (23 credits)**

*Note: Students with CEGEP-level credit for the equivalents of CHEM 212 and/or CHEM 222 (see [http://www.mcgill.ca/students/courses/plan/transfer/](http://www.mcgill.ca/students/courses/plan/transfer/) for accepted equivalents) may not take these courses at McGill and should replace them with elective courses to satisfy the total credit requirement for their degree.*

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC 212</td>
<td>3</td>
<td>Molecular Mechanisms of Cell Function</td>
</tr>
<tr>
<td>BIOL 200</td>
<td>3</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>3</td>
<td>Basic Genetics</td>
</tr>
<tr>
<td>CHEM 204</td>
<td>3</td>
<td>Physical Chemistry/Biological Sciences 1</td>
</tr>
<tr>
<td>CHEM 212*</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 222*</td>
<td>4</td>
<td>Introductory Organic Chemistry 2</td>
</tr>
<tr>
<td>CHEM 287</td>
<td>2</td>
<td>Introductory Analytical Chemistry</td>
</tr>
<tr>
<td>CHEM 297</td>
<td>1</td>
<td>Introductory Analytical Chemistry Laboratory</td>
</tr>
</tbody>
</table>

**U1 Complementary Courses (6 credits)**

6 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 205</td>
<td>3</td>
<td>Biology of Organisms</td>
</tr>
<tr>
<td>MIMM 211</td>
<td>3</td>
<td>Introductory Microbiology</td>
</tr>
<tr>
<td>PHGY 209</td>
<td>3</td>
<td>Mammalian Physiology 1</td>
</tr>
<tr>
<td>Course Code</td>
<td>Credits</td>
<td>Course Title</td>
</tr>
<tr>
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</tr>
<tr>
<td>PHGY 210</td>
<td>(3)</td>
<td>Mammalian Physiology 2</td>
</tr>
</tbody>
</table>

**U2 Required Courses (23 credits)**

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>ANAT 262</td>
<td>(3)</td>
<td>Introductory Molecular and Cell Biology</td>
</tr>
<tr>
<td>BIOC 300D1</td>
<td>(3)</td>
<td>Laboratory in Biochemistry</td>
</tr>
<tr>
<td>BIOC 300D2</td>
<td>(3)</td>
<td>Laboratory in Biochemistry</td>
</tr>
<tr>
<td>BIOC 311</td>
<td>(3)</td>
<td>Metabolic Biochemistry</td>
</tr>
<tr>
<td>BIOC 312</td>
<td>(3)</td>
<td>Biochemistry of Macromolecules</td>
</tr>
<tr>
<td>CHEM 214</td>
<td>(3)</td>
<td>Physical Chemistry/Biological Sciences 2</td>
</tr>
<tr>
<td>CHEM 302</td>
<td>(3)</td>
<td>Introductory Organic Chemistry 3</td>
</tr>
<tr>
<td>CHEM 362</td>
<td>(2)</td>
<td>Advanced Organic Chemistry Laboratory</td>
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</tbody>
</table>

**U2 Complementary Courses (3 credits)**

3 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>BIOL 309</td>
<td>(3)</td>
<td>Mathematical Models in Biology</td>
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<tr>
<td>BIOL 373</td>
<td>(3)</td>
<td>Biometry</td>
</tr>
<tr>
<td>COMP 202</td>
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<td>Introduction to Computing 1</td>
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<td>MATH 203</td>
<td>(3)</td>
<td>Principles of Statistics 1</td>
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<td>MATH 222</td>
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<td>Calculus 3</td>
</tr>
<tr>
<td>PSYC 204</td>
<td>(3)</td>
<td>Introduction to Psychological Statistics</td>
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**U3 Required Courses (15 credits)**

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<thead>
<tr>
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<tr>
<td>BIOC 404</td>
<td>(3)</td>
<td>Biophysical Chemistry</td>
</tr>
<tr>
<td>BIOC 450</td>
<td>(3)</td>
<td>Protein Structure and Function</td>
</tr>
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<td>BIOC 454</td>
<td>(3)</td>
<td>Nucleic Acids</td>
</tr>
<tr>
<td>BIOC 462</td>
<td>(6)</td>
<td>Research Laboratory in Biochemistry</td>
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</table>

**U3 Complementary Courses (6 credits)**

At least 3 credits selected from:

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<tbody>
<tr>
<td>BIOC 458</td>
<td>(3)</td>
<td>Membranes and Cellular Signaling</td>
</tr>
<tr>
<td>BIOC 491</td>
<td>(6)</td>
<td>Independent Research</td>
</tr>
<tr>
<td>BIOC 503</td>
<td>(3)</td>
<td>Immunoochemistry</td>
</tr>
<tr>
<td>PSYT 455</td>
<td>(3)</td>
<td>Neurochemistry</td>
</tr>
</tbody>
</table>

The remainder, if any, to be selected from the following list:

<table>
<thead>
<tr>
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<th>Credits</th>
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<tbody>
<tr>
<td>BIOC 570</td>
<td>(3)</td>
<td>Biochemistry of Lipoproteins</td>
</tr>
<tr>
<td>BIOL 300</td>
<td>(3)</td>
<td>Molecular Biology of the Gene</td>
</tr>
<tr>
<td>BIOL 303</td>
<td>(3)</td>
<td>Developmental Biology</td>
</tr>
<tr>
<td>BIOL 304</td>
<td>(3)</td>
<td>Evolution</td>
</tr>
<tr>
<td>BIOL 313</td>
<td>(3)</td>
<td>Eukaryotic Cell Biology</td>
</tr>
<tr>
<td>BIOL 314</td>
<td>(3)</td>
<td>Molecular Biology of Oncogenes</td>
</tr>
</tbody>
</table>
Revision, August 2011. End of revision.

12.14.4.8 Biochemistry (BIOC) Related Programs
12.14.4.8.1 Interdepartmental Honours in Immunology

For more information, see section 12.14.17: Immunology Interdepartmental Honours. This program is offered by the departments of Biochemistry, Microbiology and Immunology, and Physiology. Students interested in the program should contact Dr. C. Piccirillo, Microbiology and Immunology (ciro.piccirillo@mcgill.ca, 514-934-1934 extension 45135), or Dr. Monroe Cohen, Physiology (monroe.cohen@mcgill.ca, 514-398-4342).

12.14.5 Biology (BIOL)

12.14.5.1 Location

Stewart Biology Building, Room W4/7
1205 avenue Docteur Penfield
Montreal, Quebec H3A 1B1

Telephone: 514-398-6400
Fax: 514-398-5069
Website: http://biology.mcgill.ca

12.14.5.2 About Biology

Biology is the study of living things at the molecular, cellular, organismal, and ecosystem levels. It deals with fundamental questions such as the origin and evolution of plants and animals, interactions between living organisms and their environment, mechanisms of embryonic development, structure and function of the living cell and individual molecules within it, molecular basis of inheritance, biochemical and genetic basis of human diseases, and how the brain and the nervous system control behaviour. The study of biology also has vast practical applications. The knowledge, methods, and concepts developed through research in the various fields of biology are applied extensively in agriculture, medicine, pharmaceutical development, biotechnology, genetic engineering, environmental protection, and wildlife management.

The Department of Biology offers a Liberal program, a Major program, Joint Majors with Computer Science and with Mathematics, an Honours program, a Minor program, a Minor concentration in Science for Arts students and an option in Quantitative Biology.

The programs in Biology offer students an opportunity to gain knowledge in more than one area of biology and they provide a broader training than the more specialized programs in Biochemistry, Microbiology, Physiology, or Anatomy and Cell Biology. Nevertheless, or perhaps as a consequence, many of our graduates continue on to M.D. programs and successful careers in health care and delivery. A B.Sc. degree in Biology also prepares students for a wide range of employment opportunities, including entry to professional schools in veterinary science, dentistry, agriculture, nursing, education, and library science. It provides a solid background for students who are interested in careers related to environmental protection, wildlife management, biotechnology, and the pharmaceutical industry. A B.Sc. degree in Biology often leads to postgraduate studies at the M.Sc. and Ph.D. levels, and then on to research careers in universities, research institutes, hospitals, and industrial or governmental laboratories.

The Department of Biology has well-equipped teaching laboratories located in the Stewart Biology Building, and research labs located in the Stewart Biology Building and the Bellini Life Sciences Building. Much of the Department's research space has been renovated or newly constructed in the last several years thanks to extensive support from the Canadian Foundation for Innovation, the Ministère de la développement économique, innovation, et exploration du Québec, and the generosity of private benefactors. Our undergraduates are encouraged to take advantage of these facilities by pursuing independent research projects, either as 3-, 6- and 9-credit stand-alone courses or as part of the Honours program. Department members carry out research in areas of molecular biology, cell biology, ecology, animal behaviour, developmental biology, bioinformatics, neurobiology, marine biology, plant biology, and evolution. The Department also includes many associate faculty members, many of whom are located in McGill-affiliated teaching hospitals or in departments of the Faculty of Medicine, and others who are affiliated with the Redpath Museum, the McGill School of Environment, and remote sites such as the Smithsonian Tropical
Research Institute (STRI) in Panama and the Bellairs Research Institute in Barbados. Field courses are given at STRI and Bellairs, at the nearby Gault Nature Reserve, and also at the Huntsman Marine Science Centre in New Brunswick. The Department is also a very active contributor to the Africa Field Study Semester.

The Biology Department Undergraduate Programs 2011-2012 booklet ("Blue Book") describes in detail the content of each course and the level at which it is given, the aims and methods used, lectures, references, grading procedures, and other important information. The "Blue Book" also contains more information on registration, counselling, committee structure, and the research interests and facilities that are provided in the Department. It is available at http://biology.mcgill.ca/undergrad/bluebook.html.

Inquiries about undergraduate programs should be directed to the Student Affairs Office, Room W3/25B, Stewart Biology Building, telephone 514-398-7045.

Note to those interested in the B.A. & Sc. program: Two major concentrations in Biology as well as two minor concentrations in Biology (Organismal and Cell/Molecular Options) are available to students pursuing the B.A. & Sc. degree. These major concentrations are described in the Bachelor of Arts and Science section of this publication; see Bachelor of Arts and Science > Biology (BIOL) for details.

12.14.5.3 Preprogram Requirements

Requirements for the Major and Honours programs in Biology are two courses in elementary Biology, two courses in general Chemistry, two courses in Mathematics (as per the Freshman requirements), and two courses in Physics (Mechanics and Electromagnetism). Students entering into the B.A. & Sc., the Liberal Program and the Biology Science Minor have the same Biology, Chemistry, and Mathematics requirements. The Physics requirements will vary according to their future direction. Note that satisfying the minimum Freshman Mathematics requirements may not necessarily qualify for medical or dental school admissions requirements.

Students planning to take one of the joint majors or the new Quantitative Biology Major should consult the Undergraduate Adviser to ensure they are taking the appropriate prerequisites.

12.14.5.4 Biology Concentrations

Students interested in advanced studies in any biological discipline are strongly advised to develop their skills in computing as appropriate. As an aid to students wishing to specialize, key and suggested courses are listed by discipline.

12.14.5.4.1 Animal Behaviour Concentration

Understanding the diverse ways in which animals feed, mate, care for their offspring, avoid predators, select their habitats, communicate, and process information constitute the subject matter of behaviour. Several approaches are used to study these questions. Some focus on ecological consequences and determinants, some on physiological, genetic, and developmental mechanisms, others on evolutionary origins.

Key courses: BIOL 304, BIOL 305, BIOL 306, BIOL 307, BIOL 331 or BIOL 334D1/BIOL 334D2 or another field course with a significant behavioural component, BIOL 373, BIOL 507.

Other suggested courses: BIOL 377, BIOL 466, BIOL 467, BIOL 468D1/BIOL 468D2, BIOL 469D1/BIOL 469D2.

Most courses from the fields of behaviour, ecology, and evolutionary biology will be relevant for this concentration. Some courses that focus on a particular taxonomic group such as birds (Natural Resource Sciences WILD 420), amphibians and reptiles (BIOL 427), and marine mammals (BIOL 335) include a significant amount of behaviour.

12.14.5.4.2 Biological Diversity and Systematics

The study of biological diversity deals with the maintenance, emergence, and history of the inexhaustible variety of different kinds of organisms. It is deeply concerned with the particular characteristics of different organisms and therefore emphasizes the detailed study of particular groups and forms the basis of comparative biology. Our knowledge of diversity is organized through the study of systematics, which seeks to understand the history of life and the phylogenetic and genetic relationships of living things. Appreciation and knowledge of diversity and systematics are essential in ecology and evolutionary biology and underlie all work in resource utilization and conservation biology.

Key courses: BIOL 304, BIOL 305, BIOL 373.

Other suggested courses: BIOL 240, BIOL 310, BIOL 324, BIOL 331, BIOL 334D1/BIOL 334D2, BIOL 335, BIOL 350/ENTO 350, BIOL 352, BIOL 355, BIOL 377, BIOL 418, BIOL 427, BIOL 428, BIOL 429, BIOL 463, BIOL 465, BIOL 466 or BIOL 467, BIOL 468D1/BIOL 468D2, BIOL 469D1/BIOL 469D2, BIOL 540, BIOL 555D1/BIOL 555D2, BIOL 569, BIOL 571, BIOL 573, BIOL 594, REDM 400, REDM 405.


12.14.5.4.3 Conservation Biology Concentration

Conservation biology is the study and protection of biological diversity. It is a scientific discipline closely connecting ecology and evolutionary biology with applications in public policy and management. Conservation biology focuses on keeping normal evolutionary processes working within a functional ecological context and deals with issues of how the wide variety of organisms and ecosystems can be maintained and prevented from declining. It considers population and habitat viability and complexity in the face of threats and perturbations. Cognizance of biological diversity, knowledge, and expertise in both ecology and evolutionary biology, and appreciation for the political, social, and economic contexts of the biodiversity crisis underlie all work in conservation biology.

Key courses: BIOL 308, BIOL 310, BIOL 373, BIOL 465, plus at least one of the following field courses: BIOL 331 or BIOL 334D1/BIOL 334D2 or BIOL 428 or BIOL 429 or BIOL 553.
Other suggested courses: BIOC 311, BIOL 314, BIOL 373, BIOL 377, BIOL 413, BIOL 427, BIOL 434, BIOL 466, BIOL 467, BIOL 468D1/BIOL 468D2, BIOL 469D1/BIOL 469D2, BIOL 510, BIOL 540, BIOL 590, BIOL 594, ECON 225, ECON 326, GEOG 370, GEOG 380, GEOG 470, REDM 400.

Macdonald Campus: NRSC 437, PLNT 358, WILD 350, WILD 415, WILD 420, WILD 421.

12.14.5.4.4 Concentrations Available Within the Area of Ecology

Ecology is the study of the interactions between organisms and environment that affect distribution, abundance, and other characteristics of the organisms. A strong analytical and quantitative orientation is common to all areas of ecology, and thus students wishing to specialize in these areas are strongly encouraged to develop their background in statistical analysis, computing, and mathematical modelling. Many of the ecology courses feature a strong analytical component, and students will find that background preparation in this area is very useful, if not essential. Ecology depends heavily on field research, and thus BIOL 331 and/or other field courses should be considered as vital to all concentrations in this area.

12.14.5.4.4.1 General and Applied Ecology Concentration

The concentration in general and applied ecology is designed to introduce the breadth of contemporary ecology, at the levels of the ecosystem, communities, and populations, and at the level of the individual organism, with an accent on the application of this science to practical problems in environmental management, and the management of resources and pests. In addition to general courses dealing with general principles, there is a selection of courses dealing with particular groups of organisms. Since it is essential to know how knowledge is obtained, the concentration includes a field course in ecology.

Key courses: BIOL 305, BIOL 308, BIOL 331 or BIOL 334D1/334D2, BIOL 350/ENTO 350, BIOL 373, COMP 202, COMP 273.

Other suggested courses: BIOL 307, BIOL 324, BIOL 342, BIOL 377, BIOL 418, BIOL 427, BIOL 428, BIOL 429, BIOL 432, BIOL 434, BIOL 441, BIOL 465, BIOL 466, BIOL 467, BIOL 468D1/BIOL 468D2, BIOL 469D1/BIOI 469D2, BIOL 510, BIOL 515, BIOL 540, BIOL 571, BIOL 590, BIOL 594, GEOG 302, REDM 405.

Macdonald Campus: PLNT 460.

12.14.5.4.4.2 Aquatic Ecology Concentration

This concentration is designed to introduce the principles of ecology as they pertain to aquatic ecosystems and aquatic biota. Since it is essential to know how knowledge is obtained, as well as what has been learned, the courses (Limnology) included field work, and one of the courses (Biological Oceanography) a laboratory component, that stress the techniques used to study aquatic ecology. In addition, the concentration includes a field course in ecology. There is also a variety of courses in essential to know how knowledge is obtained, the concentration includes a field course in ecology.

Key courses: BIOL 305, BIOL 308, BIOL 331 or another field course, BIOL 342, BIOL 373, BIOL 418, BIOL 432 (or ENVB 315), BIOL 441, BIOL 465, COMP 202, COMP 273.

Other suggested courses: BIOL 307, BIOL 429, BIOL 434, BIOL 456, BIOL 467, BIOL 468D1/BIOL 468D2, BIOL 469D1/BIOI 469D2, BIOL 540, BIOL 590, GEOG 305, GEOG 306, GEOG 308, GEOG 322, REDM 405.

12.14.5.4.4.3 Marine Biology Concentration

This concentration is designed to offer students a broad introduction to marine biology and marine ecology, which will form the basis for graduate studies in the fields, or for employment in aquatic biology and oceanography.

Key courses: BIOL 305, BIOL 308, BIOL 335, BIOL 342, BIOL 373, BIOL 441.

Other suggested courses: ATOC 512, ATOC 550, BIOL 331, BIOL 334D1/BIOL 334D2, BIOL 418, BIOL 429, BIOL 432, BIOL 434, BIOL 465, BIOL 515, BIOL 540, BIOL 590, EPSC 542.

For students intending to proceed to graduate work, one independent studies course (BIOL 466 or BIOL 467, BIOL 468D1/BIOL 468D2, BIOL 469D1/BIOI 469D2) is recommended. Because of the importance of numerical analyses in all fields of ecology, courses in Biometry (e.g. BIOL 373) and Computer Science (COMP 202 or COMP 273) are recommended.

12.14.5.4.5 Evolutionary Biology Concentration

Evolutionary biology is the study of processes that change organisms and their characteristics through time. Evolutionary biologists are concerned with adaptations of organisms and the process of natural selection.

Key courses: BIOL 304, BIOL 305, BIOL 307, BIOL 324, BIOL 331, BIOL 352, BIOL 373, BIOL 377, BIOL 435, BIOL 463, BIOL 466 or BIOL 467, BIOL 468D1/BIOI 468D2, BIOL 469D1/BIOI 469D2, BIOL 555 D1/BIOI 555 D2, BIOL 569, BIOL 570, BIOL 571, BIOL 572, BIOL 573, BIOL 585, BIOL 594.

Other suggested courses in Organismal Biology: BIOL 240, BIOL 335, BIOL 350/ENTO 350, BIOL 355, BIOL 427, BIOL 428, BIOL 463.

Macdonald Campus: PLNT 358, WILD 420.

Genetics and Development: BIOL 300, BIOL 303.


12.14.5.4.6 Human Genetics Concentration

The courses recommended for students interested in human genetics are designed to offer a broad perspective in this rapidly advancing area of biology. Genetics is covered at all levels of organization (the gene, the chromosome, the cell, the organism, and the population), using pertinent examples from all species, but with special emphasis on humans.

Key courses: BIOL 301, BIOL 370, BIOL 373, BIOL 416, BIOL 520, BIOL 568, BIOL 575.

Other suggested courses: BIOC 311, BIOL 314, BIOL 466, BIOL 467 BIOL 468D1/BIOI 468D2, BIOL 469D1/BIOI 469D2; CHEM 203 or CHEM 204 and CHEM 214, MIMM 314.
The discoveries that have fuelled the ongoing biomedical and biotechnology revolution have been derived from the fusion of a number of fields of biological investigation, including molecular biology, genetics, cellular and developmental biology, and biochemistry. A substantial amount of this research has been conducted upon model eukaryotic organisms, such as yeast, the fruit fly (Drosophila), the nematode (C. elegans), and the mustard weed (Arabidopsis). In the molecular genetics and development concentration, students will obtain a comprehensive understanding of how these “model eukaryotes” have advanced our knowledge of the mechanisms responsible for cellular function and organismal development. Graduates from this concentration will be well prepared to pursue higher degrees in the fields of basic biology, biotechnology, and biomedicine or to assume a wide variety of positions in government, universities, and medical and industrial institutions.

Key courses: BIOL 300, BIOL 301, BIOL 303, BIOL 373, BIOL 569; CHEM 203 or CHEM 204 combined with CHEM 214, CHEM 212, CHEM 222.

Other suggested courses: BIOL 313, BIOL 314, BIOL 316, BIOL 416, BIOL 466, BIOL 467, BIOL 468D1/BIOL 468D2, BIOL 469D1/BIOL 469D2, BIOL 518, BIOL 520, BIOL 524, BIOL 544.

12.14.5.4.8 Neurobiology Concentration

Nervous systems are perhaps the most complex entities in the natural world, being composed of up to trillions of interconnected cells that must operate in a coordinated manner to produce behaviour which can range from the mundane (e.g., regulation of heart rate) to the magnificent (e.g., musical composition). The neurobiology discipline, one of the fastest growing areas of modern biology, seeks to understand the evolution, development, and operation of nervous systems. The neurobiology concentration addresses these issues by examining neural structure, function, and development at levels of organization that range from the molecular to the organismal. As a result of exposure to a wide range of experimental and intellectual approaches, students receive a sound, broadly based education in biology.

Key courses: BIOL 306, BIOL 373, BIOL 389, BIOL 507, BIOL 514, BIOL 530, BIOL 532, BIOL 588.

Revision, August 2011. Start of revision.

Other suggested courses: ANAT 321, ANAT 322, BIOL 300, BIOL 303, BIOL 466, BIOL 467, BIOL 468D1/BIOL 468D2, BIOL 469D1/BIOL 469D2, NEUR 310, NSCI 200, NSCI 201, PHAR 562, PHGY 311, PHGY 314, PHGY 425, PHGY 451, PHGY 556, PSYC 311, PSYC 318, PSYC 342, PSYC 410, PSYC 470, PSYT 455, PSYT 500.

Revision, August 2011. End of revision.

12.14.5.5 Biology (BIOL) Faculty

Revision, August 2011. Start of revision.

Chair

Graham A.C. Bell; B.A., D.Phil.(Oxf.), F.R.S.C. (James McGill Professor)

Revision, August 2011. End of revision.

Emeritus Professors

A. Howard Bussey; B.Sc., Ph.D.(Brist.), F.R.S.C.
Robert L. Carroll; B.S.(Mich.), M.A., Ph.D.(Harv.), F.R.S.C.
Ronald Chase; A.B.(Stan.), Ph.D.(MIT)
Jacob Kalff; M.S.A.(Tor.), Ph.D.(Ind.)
Donald L. Kramer; B.Sc.(Boston Coll.), Ph.D.(Br. Col.)
John B. Lewis; B.Sc., M.Sc., Ph.D.(McG.)

Professors

Graham A.C. Bell; B.A., D.Phil.(Oxf.), F.R.S.C. (James McGill Professor)
Gregory G. Brown; B.Sc.(Notre Dame), Ph.D.(CUNY) (on sabbatical)
Lauren Chapman; B.Sc.(Alta.), Ph.D.(McG.) (Canadian Research Chair in Respiratory Ecology and Aquatic Conservation)
Rajinder S. Dhindsa; B.Sc., M.Sc.(Punj.), Ph.D.(Wisc.)
Siegfried Hekimi; M.Sc., Ph.D.(Geneva) (Strathcona Chair in Zoology; Robert Archibald & Catherine Louise Campbell Chair in Developmental Biology)
Paul F. Lasko; A.B.(Harv.), Ph.D.(MIT) (James McGill Professor) (Associate Member in Anatomy & Cell Biology)
Martin Lechowicz; B.A.(Mich. St.), M.S., Ph.D.(Wisc.) (on sabbatical)
Louis Lefebvre; B.Sc., M.A., Ph.D.(Montr.)
Michel Loreau; M.Sc., Ph.D.(Free Univ., Brussels) (Canadian Research Chair in Theoretical Ecology) (on sabbatical)
### Professors

Gerald S. Pollack; M.A., Ph.D.(Princ.)

Catherine Potvin; B.Sc., M.Sc.(Montr.), Ph.D.(Duke)

Neil M. Price; B.Sc.(New Br.), Ph.D.(Br. Col.)

Daniel J. Schoen; B.Sc., M.Sc.(Mich.), Ph.D.(Calif.) (Macdonald Professor of Botany) (on sabbatical)

### Associate Professors

Ehab Abouheif; M.Sc.(C'dia), Ph.D.(Duke)

Thomas Bureau; B.Sc.(Calif.), Ph.D.(Texas) (William Dawson Scholar)

Joseph A. Dent; B.Sc., Ph.D.(Colo.)

François Fagotto; Ph.D.(Neuchâtel) (Canadian Research Chair in Cell Biology)

Gregor Fussmann; Dipl.(Berlin), Ph.D.(Max-Planck-Institute)

Andrew Gonzalez; B.Sc.(Nott.), Ph.D.(Imperial Coll., Lond.) (Canadian Research Chair in Biodiversity)

Frédéric Guichard; B.Sc.(Montr.), Ph.D.(Laval)

Paul Harrison; B.Sc.(NUI), Ph.D.(Lond.) (on sabbatical)

Andrew Hendry; B.Sc.(Vic., BC), M.Sc., Ph.D.(Wash.) (joint appt. with Redpath Museum)

Rudiger Krahe; Dipl.(Alexander Univ.), Ph.D.(Humboldt)

Brian Leung; B.Sc.(Br. Col.), Ph.D.(Car.)

Robert L. Levine; B.Sc.(Brooklyn), M.Sc., Ph.D.(Yale)

Laura Nilson; B.A.(Colgate), Ph.D.(Yale) (Canada Research Chair in Developmental Genetics)

Simon Reader; B.A.(Camb.), Ph.D.(Camb.)

Richard Roy; B.Sc.(Bishop's), Ph.D.(Laval)

Frieder Schoeck; Dipl.(Erhangen), Ph.D.(Max-Planck-Institute)

Jacalyn Vogel; M.Sc.(E. Ill.), Ph.D.(Kansas) (Canadian Pacific Chair in Biotechnology)

Tamara Western; B.Sc.(Dal.), Ph.D.(Br. Col.)

Monique Zetka; B.Sc., Ph.D.(Br. Col.)

### Assistant Professors

Gary Brouhard; M.S.E., Ph.D.(Mich.)

David Dankort; B.Sc., Ph.D.(McM.)

Jonathan Davies; M.Sc.(Cape Town), Ph.D.(Imperial Coll., Lond.)

Irene Gregory-Eaves; B.Sc.(Vic., BC), M.Sc., Ph.D.(Qu.)

Nam-Sung Moon; B.Sc., Ph.D.(McG.)

Jon Sakata; B.A.(C'nell), Ph.D.(Texas-Austin, Institute for Neuroscience)

Alanna Watt; B.Sc.(C'dia), Ph.D.(Brandeis)

Sarah Woolley; B.Sc.(Duke), Ph.D.(Texas-Austin)

Hugo Zheng; M.Sc.(Helsinki), Ph.D.(Oxf. Brookes)

### Associate Members

Anatomy and Cell Biology: Craig Mandato, Nathalie Lamerche-Vane

Anthropology: Colin Chapman

Bellairs: Judith Mendes

Biochemistry: Maxime Bouchard

Centre for Research in Neuroscience: Sal Carbonetto
**Associate Members**

Medical Genetics, Chair: David Rosenblatt
MCH: Feige Kaplan, Rima Rozen
MGH: Yong Rao, Donald Van Meyel
MNI: Robert Dunn, Kenneth Hastings, Stefano Stifani
Physics: Paul Francois
Redpath Museum: David Green, Hans Larsson, Claire de Mazancourt *(Program Coordinator for Joint Major in Biology and Mathematics)*, Virginie Millien, Anthony Ricciardi
RVH: Hugh J. Clarke, Daniel Dufort, Teruko Taketo

**Revision, August 2011. Start of revision.**

**Adjunct Professors**

IRCM: Michel Cayouette, Frédéric Charron, Artur Kania, Marie Kmita
NRC Lab: Malcolm S. Whiteway
U. of Montreal: Pierre Drapeau, Louis St-Amant

**Revision, August 2011. End of revision.**

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**Bachelor of Science (B.Sc.) - Minor Biology (25 credits)**

The Minor Biology may be taken in conjunction with any primary program in the Faculty of Science (other than programs offered by the Department of Biology). Students are advised to consult the undergraduate adviser in Biology as early as possible (preferably during their first year), in order to plan their course selection. See Nancy Nelson, Stewart Biology Building, W3/25, 514-398-4109, email: nancy.nelson@mcgill.ca.

6 credits of overlap are allowed between the Minor and the primary program.

**Required Courses (15 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 200</td>
<td>3</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 201</td>
<td>3</td>
<td>Cell Biology and Metabolism</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>3</td>
<td>Basic Genetics</td>
</tr>
<tr>
<td>BIOL 205</td>
<td>3</td>
<td>Biology of Organisms</td>
</tr>
<tr>
<td>BIOL 215</td>
<td>3</td>
<td>Introduction to Ecology and Evolution</td>
</tr>
</tbody>
</table>

**Complementary Courses (10 credits)**

Students complete a minimum of 9 or a maximum of 10 complementary course credits depending on their choice of complementary courses.

To include:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 212</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
</tbody>
</table>

Plus an additional two courses from the Biology department's course offerings, at the 300 level or above.

* Students who have already taken CHEM 212 or its equivalent will choose another appropriate course, to be approved by the Adviser.

---

**Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Biology (47 credits)**

Students may complete this program with a minimum of 45 credits or a maximum of 47 credits depending on their choice of complementary courses.

**Required Courses (19 credits)**

* If a student has already taken CHEM 212 or its equivalent, the 4 credits can be made up with a 3-credit complementary.
**Complementary Courses (28 credits)**

Students complete a minimum of 27 credits or a maximum of 28 complementary course credits selected as follows:

3 or 4 credits selected from:

- BIOL 206 (3) Methods in Biology of Organisms
- BIOL 301 (4) Cell and Molecular Laboratory

**24 credits of Biology courses**

9 credits of which, in consultation with the Program Adviser, can be replaced with appropriate Science courses from other departments. No more than 6 of the 24 credits can be taken at the 200 level.

**12.14.5.8 Bachelor of Science (B.Sc.) - Major Biology (59 credits)**

The Major requires 58 or 59 credits depending on a student's choice of complementary courses. Students in the Major program are permitted to take a maximum of 9 credits of research courses.

**U1 Required Courses (18 credits)**

- BIOL 200 (3) Molecular Biology
- BIOL 201 (3) Cell Biology and Metabolism
- BIOL 202 (3) Basic Genetics
- BIOL 205 (3) Biology of Organisms
- BIOL 206 (3) Methods in Biology of Organisms
- BIOL 215 (3) Introduction to Ecology and Evolution

**U2 or U3 Required Course (4 credits)**

- BIOL 301 (4) Cell and Molecular Laboratory

**Complementary Courses (37 credits)**

Students complete a minimum of 36 credits or maximum of 37 credits selected as follows:

**U1 Complementary Course**

* Students who have already taken CHEM 212 or its equivalent will choose another appropriate complementary course, to be approved by the Adviser.

- CHEM 212* (4) Introductory Organic Chemistry 1

**U2 or U3 Complementary Courses**

12 credits selected from:

- BIOL 300 (3) Molecular Biology of the Gene
- BIOL 303 (3) Developmental Biology
Other Complementary Courses

21-24 credits selected in consultation with the Program Adviser. All courses must be at the 300 level or higher; they are to include Biology courses of which at most three courses may be substituted, given the Adviser's consent, with science courses offered by other departments. Unless required by the Major, prerequisites for these courses must be taken as electives.

12.14.5.9 Bachelor of Science (B.Sc.) - Major Biology - Quantitative Biology (72 credits)

Interdisciplinary research that draws from the natural and physical sciences is an important aspect of modern biology. The Quantitative Biology option is designed for students with a deep interest in biology who wish to gain a strong grounding in physical sciences and their application to biological questions. The Quantitative Biology option has two streams: an ecology and evolutionary biology stream and a physical biology stream. Both streams provide a balance of theory and experimental components.

Students may complete this program with a minimum of 68 credits or a maximum of 72 credits depending on whether MATH 222 is completed.

Advising notes for U0 students

It is highly recommended that freshman BIOL, CHEM, MATH, and PHYS courses be selected with the program Adviser to ensure they meet the core requirements of the Quantitative Biology option.

This program is recommended for U1 students achieving a CGPA of 3.20 or better; and entering CEGEP students with a Math/Science R-score of 28.0 or better.

Required Courses (39 credits)

Biology

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 200</td>
<td>3</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 201</td>
<td>3</td>
<td>Cell Biology and Metabolism</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>3</td>
<td>Basic Genetics</td>
</tr>
<tr>
<td>BIOL 205</td>
<td>3</td>
<td>Biology of Organisms</td>
</tr>
<tr>
<td>BIOL 215</td>
<td>3</td>
<td>Introduction to Ecology and Evolution</td>
</tr>
<tr>
<td>BIOL 395</td>
<td>1</td>
<td>Quantitative Biology Seminar 1</td>
</tr>
<tr>
<td>BIOL 466</td>
<td>3</td>
<td>Independent Research Project 1</td>
</tr>
<tr>
<td>BIOL 495</td>
<td>1</td>
<td>Quantitative Biology Seminar 2</td>
</tr>
</tbody>
</table>

Chemistry

* Students who have taken the equivalent of CHEM 212 can make up the credits with a complementary CHEM course in consultation with a stream adviser.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 212*</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
</tbody>
</table>

Computer Science

* Students who have taken COMP 202 or have sufficient programming experience can make up the credits with a complementary COMP course in consultation with a stream adviser. COMP 364 is strongly recommended.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 202*</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>COMP 250</td>
<td>3</td>
<td>Introduction to Computer Science</td>
</tr>
</tbody>
</table>

Math

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 223</td>
<td>3</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 315</td>
<td>3</td>
<td>Ordinary Differential Equations</td>
</tr>
</tbody>
</table>
**Physics**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 230</td>
<td>3</td>
<td>Dynamics of Simple Systems</td>
</tr>
</tbody>
</table>

**Complementary Courses (33 credits)**

29-33 credits of complementary courses selected as follows:

0-3 credits from MATH:
* For students who have NOT taken MATH 150 and MATH 151

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 222*</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
</tbody>
</table>

9 credits from the following lists:

**For Ecology and Evolutionary Biology Stream**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 204</td>
<td>3</td>
<td>Principles of Statistics 2</td>
</tr>
<tr>
<td>MATH 242</td>
<td>3</td>
<td>Analysis 1</td>
</tr>
<tr>
<td>MATH 324</td>
<td>3</td>
<td>Statistics</td>
</tr>
<tr>
<td>MATH 340</td>
<td>3</td>
<td>Discrete Structures 2</td>
</tr>
<tr>
<td>MATH 423</td>
<td>3</td>
<td>Regression and Analysis of Variance</td>
</tr>
<tr>
<td>MATH 524</td>
<td>4</td>
<td>Nonparametric Statistics</td>
</tr>
<tr>
<td>MATH 525</td>
<td>4</td>
<td>Sampling Theory and Applications</td>
</tr>
</tbody>
</table>

**For Physical Biology Stream**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 222</td>
<td>4</td>
<td>Introductory Organic Chemistry 2</td>
</tr>
<tr>
<td>CHEM 243</td>
<td>2</td>
<td>Introductory Physical Chemistry 2</td>
</tr>
<tr>
<td>CHEM 253</td>
<td>1</td>
<td>Introductory Physical Chemistry 1 Laboratory</td>
</tr>
<tr>
<td>CHEM 345</td>
<td>3</td>
<td>Molecular Properties and Structure 1</td>
</tr>
<tr>
<td>CHEM 355</td>
<td>3</td>
<td>Molecular Properties and Structure 2</td>
</tr>
<tr>
<td>CHEM 514</td>
<td>3</td>
<td>Biophysical Chemistry</td>
</tr>
<tr>
<td>PHYS 342</td>
<td>3</td>
<td>Majors Electromagnetic Waves</td>
</tr>
<tr>
<td>PHYS 434</td>
<td>3</td>
<td>Optics</td>
</tr>
<tr>
<td>PHYS 534</td>
<td>3</td>
<td>Nanoscience and Nanotechnology</td>
</tr>
</tbody>
</table>

**For both Streams**

*Students may select either CHEM 365 or PHYS 333

** Students may select either COMP 350 or MATH 317

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 365*</td>
<td>2</td>
<td>Statistical Thermodynamics</td>
</tr>
<tr>
<td>COMP 206</td>
<td>3</td>
<td>Introduction to Software Systems</td>
</tr>
<tr>
<td>COMP 251</td>
<td>3</td>
<td>Data Structures and Algorithms</td>
</tr>
<tr>
<td>COMP 350**</td>
<td>3</td>
<td>Numerical Computing</td>
</tr>
<tr>
<td>COMP 364</td>
<td>3</td>
<td>Computer Tools for Life Sciences</td>
</tr>
<tr>
<td>MATH 314</td>
<td>3</td>
<td>Advanced Calculus</td>
</tr>
</tbody>
</table>
MATH 317** (3) Numerical Analysis
MATH 319 (3) Introduction to Partial Differential Equations
MATH 323 (3) Probability
MATH 326 (3) Nonlinear Dynamics and Chaos
MATH 327 (3) Matrix Numerical Analysis
MATH 348 (3) Topics in Geometry
MATH 437 (3) Mathematical Methods in Biology
MATH 447 (3) Introduction to Stochastic Processes
PHYS 333* (3) Thermal and Statistical Physics

20 or 21 credits from ONE of the following two streams:

**Ecology and Evolutionary Biology Stream**
0-21 credits

9 credits of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 206</td>
<td>3</td>
<td>Methods in Biology of Organisms</td>
</tr>
<tr>
<td>BIOL 304</td>
<td>3</td>
<td>Evolution</td>
</tr>
<tr>
<td>BIOL 308</td>
<td>3</td>
<td>Ecological Dynamics</td>
</tr>
</tbody>
</table>

3 credits of Field course from the following, (or any other field course with permission):

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 240</td>
<td>3</td>
<td>Monteregian Flora</td>
</tr>
<tr>
<td>BIOL 331</td>
<td>3</td>
<td>Ecology/Behaviour Field Course</td>
</tr>
<tr>
<td>BIOL 334</td>
<td>3</td>
<td>Applied Tropical Ecology</td>
</tr>
<tr>
<td>BIOL 432</td>
<td>3</td>
<td>Limnology</td>
</tr>
</tbody>
</table>

9 credits chosen from the following, of which 6 credits must be at the 400 level or above:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 310</td>
<td>3</td>
<td>Biodiversity and Ecosystems</td>
</tr>
<tr>
<td>BIOL 324</td>
<td>3</td>
<td>Ecological Genetics</td>
</tr>
<tr>
<td>BIOL 373</td>
<td>3</td>
<td>Biometry</td>
</tr>
<tr>
<td>BIOL 434</td>
<td>3</td>
<td>Theoretical Ecology</td>
</tr>
<tr>
<td>BIOL 435</td>
<td>3</td>
<td>Natural Selection</td>
</tr>
<tr>
<td>BIOL 590</td>
<td>3</td>
<td>Linking Community and Ecosystem Ecology</td>
</tr>
<tr>
<td>BIOL 594</td>
<td>3</td>
<td>Advanced Evolutionary Ecology</td>
</tr>
</tbody>
</table>

**Physical Biology Stream**
0-21 credits

8-9 credits:

* Students may select either PHYS 232 or PHYS 242

Note: PHYS 242 is required for PHYS 342 and PHYS 434

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 301</td>
<td>4</td>
<td>Cell and Molecular Laboratory</td>
</tr>
</tbody>
</table>
### Bachelor of Science (B.Sc.) - Major Biology and Mathematics (76 credits)

This program is built on a selection of mathematics and biology courses that recognizes mathematical biology as a field of research, with three streams within biology: Ecology and Evolutionary Ecology, Molecular Evolution, and Neurosciences.

**Advising notes for U0 students:**
- It is highly recommended that freshman BIOL, CHEM, MATH, and PHYS courses be selected with the program Adviser to ensure they meet the core requirements of the program.
- This program is recommended for U1 students achieving a CGPA of 3.2 or better; and entering CEGEP students with a Math/Science R-score of 28.0 or better.

**Required Courses (34 credits)**

* If a student has already taken CHEM 212 or its equivalent, the credits can be made up with a complementary course in consultation with the program Adviser.

** Students who have sufficient knowledge in a programming language should take COMP 250 (3) Introduction to Computer Science rather than COMP 202.

*** Students may take either MATH 223 or MATH 247.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 200</td>
<td>3</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 201</td>
<td>3</td>
<td>Cell Biology and Metabolism</td>
</tr>
<tr>
<td>BIOL 215</td>
<td>3</td>
<td>Introduction to Ecology and Evolution</td>
</tr>
<tr>
<td>CHEM 212*</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>COMP 202**</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 223***</td>
<td>3</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 242</td>
<td>3</td>
<td>Analysis 1</td>
</tr>
</tbody>
</table>

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6 credits chosen from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 300</td>
<td>3</td>
<td>Molecular Biology of the Gene</td>
</tr>
<tr>
<td>BIOL 303</td>
<td>3</td>
<td>Developmental Biology</td>
</tr>
<tr>
<td>BIOL 306</td>
<td>3</td>
<td>Neural Basis of Behaviour</td>
</tr>
<tr>
<td>BIOL 309</td>
<td>3</td>
<td>Mathematical Models in Biology</td>
</tr>
<tr>
<td>BIOL 313</td>
<td>3</td>
<td>Eukaryotic Cell Biology</td>
</tr>
<tr>
<td>PHYS 319</td>
<td>3</td>
<td>Introduction to Biophysics</td>
</tr>
</tbody>
</table>

And 6 credits chosen from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 518</td>
<td>3</td>
<td>Advanced Topics in Cell Biology</td>
</tr>
<tr>
<td>BIOL 520</td>
<td>3</td>
<td>Gene Activity in Development</td>
</tr>
<tr>
<td>BIOL 524</td>
<td>3</td>
<td>Topics in Molecular Biology</td>
</tr>
<tr>
<td>BIOL 530</td>
<td>3</td>
<td>Advances in Neuroethology</td>
</tr>
<tr>
<td>BIOL 551</td>
<td>3</td>
<td>Molecular Biology: Cell Cycle</td>
</tr>
<tr>
<td>BIOL 588</td>
<td>3</td>
<td>Advances in Molecular/Cellular Neurobiology</td>
</tr>
</tbody>
</table>
MATH 243 (3) Analysis 2
MATH 247*** (3) Honours Applied Linear Algebra
MATH 315 (3) Ordinary Differential Equations
MATH 323 (3) Probability

Complementary Courses (42 credits)
For the 42 credits, students complete 24 credits of BINF, BIOL, NEUR, PHGY, PSYC courses including one of three Streams (Ecology and Evolutionary Ecology, Molecular Evolution, Neurosciences) and 18 credits of MATH courses.

Math or Biology Research Course
Note: Students selecting a BIOL course count this toward their 24 credits of BINF, BIOL, NEUR, PHGY, PSYC courses while students selecting a MATH course count this toward their 18 credits of MATH courses.

3 credits from the following Math or Biology Research courses:

- BIOL 466 (3) Independent Research Project 1
- BIOL 467 (3) Independent Research Project 2
- MATH 410 (3) Majors Project

Of the remaining complementary courses, at least 6 credits must be at the 400 level or above.

Math Courses
15-18 credits of MATH courses chosen from Sequence 1 or 2 and from "Remaining Math Courses" as follows:

Sequence 1
12 credits from the following courses:

* Students may take either MATH 317 or MATH 327
** Students may take either MATH 326 or MATH 437

- MATH 314 (3) Advanced Calculus
- MATH 317* (3) Numerical Analysis
- MATH 319 (3) Introduction to Partial Differential Equations
- MATH 326** (3) Nonlinear Dynamics and Chaos
- MATH 327* (3) Matrix Numerical Analysis
- MATH 437** (3) Mathematical Methods in Biology

Sequence 2
9 credits from the following:

- MATH 324 (3) Statistics
- MATH 423 (3) Regression and Analysis of Variance
- MATH 447 (3) Introduction to Stochastic Processes

Remaining Math Courses
Remaining 3-9 credits of MATH courses may be chosen from any of the two preceding sequences and/or from the following list:

- MATH 204 (3) Principles of Statistics 2
- MATH 340 (3) Discrete Structures 2
- MATH 523 (4) Generalized Linear Models
- MATH 524 (4) Nonparametric Statistics
### MATH 525
Sampling Theory and Applications

### BIOL, NEUR, PHGY, PHYS, PSYC Courses
21-24 credits of BIOL, NEUR, PHGY, PHYS, PSYC courses including one of three Streams.
Note: Some courses in the Streams may have prerequisites.

### Ecology and Evolutionary Ecology Stream
At least 15 credits selected as follows:

#### Stream Required Course
3 credits of:
- **BIOL 206** (3) Methods in Biology of Organisms

#### Stream Complementary Courses
3 credits from the following field courses or any other field course with permission:
- **BIOL 240** (3) Monteregian Flora
- **BIOL 331** (3) Ecology/Behaviour Field Course
- **BIOL 334D1** (1.5) Applied Tropical Ecology
- **BIOL 334D2** (1.5) Applied Tropical Ecology
- **BIOL 432** (3) Limnology

At least 9 credits chosen from the following list, of which 6 credits must be at the 400 level or above:
- **BIOL 202** (3) Basic Genetics
- **BIOL 304** (3) Evolution
- **BIOL 308** (3) Ecological Dynamics
- **BIOL 310** (3) Biodiversity and Ecosystems
- **BIOL 324** (3) Ecological Genetics
- **BIOL 434** (3) Theoretical Ecology
- **BIOL 435** (3) Natural Selection
- **BIOL 466** (3) Independent Research Project 1
- **BIOL 467** (3) Independent Research Project 2
- **BIOL 468** (6) Independent Research Project 3
- **BIOL 585** (3) Game Theory and Evolutionary Dynamics
- **BIOL 590** (3) Linking Community and Ecosystem Ecology
- **BIOL 594** (3) Advanced Evolutionary Ecology

### Molecular Evolution Stream
At least 16 credits selected as follows:

#### Stream Required Courses
7 credits from:
- **BIOL 202** (3) Basic Genetics
- **BIOL 301** (4) Cell and Molecular Laboratory
Stream Complementary Courses

At least 9 credits selected from the following list, of which 6 credits must be at the 400 level or above.

* Students may take either BINF 511 or BIOL 592.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BINF 511*</td>
<td>3</td>
<td>Bioinformatics for Genomics</td>
</tr>
<tr>
<td>BIOL 303</td>
<td>3</td>
<td>Developmental Biology</td>
</tr>
<tr>
<td>BIOL 304</td>
<td>3</td>
<td>Evolution</td>
</tr>
<tr>
<td>BIOL 435</td>
<td>3</td>
<td>Natural Selection</td>
</tr>
<tr>
<td>BIOL 466</td>
<td>3</td>
<td>Independent Research Project 1</td>
</tr>
<tr>
<td>BIOL 467</td>
<td>3</td>
<td>Independent Research Project 2</td>
</tr>
<tr>
<td>BIOL 468</td>
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<td>Independent Research Project 3</td>
</tr>
<tr>
<td>BIOL 518</td>
<td>3</td>
<td>Advanced Topics in Cell Biology</td>
</tr>
<tr>
<td>BIOL 569</td>
<td>3</td>
<td>Developmental Evolution</td>
</tr>
<tr>
<td>BIOL 572</td>
<td>3</td>
<td>Molecular Evolution</td>
</tr>
<tr>
<td>BIOL 592*</td>
<td>3</td>
<td>Integrated Bioinformatics</td>
</tr>
</tbody>
</table>

Neurosciences Stream

At least 15 credits selected as follows:

Stream Required Course

3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 306</td>
<td>3</td>
<td>Neural Basis of Behaviour</td>
</tr>
</tbody>
</table>

Stream Complementary Courses

At least 12 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 389</td>
<td>3</td>
<td>Laboratory in Neurobiology</td>
</tr>
<tr>
<td>BIOL 466</td>
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<td>Independent Research Project 1</td>
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<td>BIOL 467</td>
<td>3</td>
<td>Independent Research Project 2</td>
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<tr>
<td>BIOL 468</td>
<td>6</td>
<td>Independent Research Project 3</td>
</tr>
<tr>
<td>BIOL 530</td>
<td>3</td>
<td>Advances in Neuroethology</td>
</tr>
<tr>
<td>PHGY 314</td>
<td>3</td>
<td>Integrative Neuroscience</td>
</tr>
<tr>
<td>PHGY 425</td>
<td>3</td>
<td>Analyzing Physiological Systems</td>
</tr>
<tr>
<td>PSYC 427</td>
<td>3</td>
<td>Sensorimotor Behaviour</td>
</tr>
</tbody>
</table>

Remaining BINF, BIOL, NEUR, PHGY, PSYC

For the remaining BINF, BIOL, NEUR, PHGY, PSYC complementary course credits, if any, students may choose any course listed in the above streams in Biology or any other course in Biology with the approval of the program Adviser.

12.14.5.11 Bachelor of Science (B.Sc.) - Honours Biology (75 credits)

Students may complete this program with a minimum of 71 credits or a maximum of 75 credits depending on their choice of complementary courses.

The Honours program in Biology is designed expressly as a preparation for graduate studies and research, and provides students with an enriched training in biology and some research experience in a chosen area. Acceptance into the Honours program at the end of U2 requires a CGPA of 3.50 and approval of a 9- or 12-credit Independent Studies proposal (see listing of BIOL 479 and BIOL 480 for details). Students also complete a 4-credit Honours Seminar course, BIOL 499. For an Honours degree, a minimum CGPA of 3.50 in the U3 year and adherence to the program as outlined below are the additional requirements.

U1 Required Courses (18 credits)
BIOL 200 (3) Molecular Biology
BIOL 201 (3) Cell Biology and Metabolism
BIOL 202 (3) Basic Genetics
BIOL 205 (3) Biology of Organisms
BIOL 206 (3) Methods in Biology of Organisms
BIOL 215 (3) Introduction to Ecology and Evolution

**U1 Complementary Course (4 credits)**

* Students who have already taken CHEM 212 or its equivalent will choose another appropriate complementary course, to be approved by the Adviser.

CHEM 212* (4) Introductory Organic Chemistry 1

**U2 or U3 Required Courses (7 credits)**

BIOL 301 (4) Cell and Molecular Laboratory
BIOL 373 (3) Biometry

**U2 and U3 Complementary Courses (33 credits)**

Students who take CHEM 212 in U1 complete 30 credits and those exempted from CHEM 212 complete 33 credits selected as follows:

12 credits selected from:

- BIOL 300 (3) Molecular Biology of the Gene
- BIOL 303 (3) Developmental Biology
- BIOL 304 (3) Evolution
- BIOL 306 (3) Neural Basis of Behaviour
- BIOL 308 (3) Ecological Dynamics

18-21 credits in Biology at the 300 level or higher, of which 9 credits may be from other Science departments, with approval of the Adviser.

**U3 Required Courses (4 credits)**

- BIOL 499D1 (2) Honours Seminar in Biology
- BIOL 499D2 (2) Honours Seminar in Biology

**U3 Complementary Courses (12 credits)**

9-12 credits selected from:

- BIOL 479D1 (4.5) Honours Research Project 1
- BIOL 479D2 (4.5) Honours Research Project 1
- BIOL 480D1 (6) Honours Research Project 2
- BIOL 480D2 (6) Honours Research Project 2

---

12.14.5.12 Biology (BIOL) Related Programs and Study Semesters
12145121 Joint Major in Computer Science and Biology

For more information, see section 12.14.9.11: Bachelor of Science (B.Sc.) - Major Computer Science and Biology (73 credits).
12145122 Panama Field Study Semester
The program is a joint venture between McGill University and the Smithsonian Tropical Research Institute (STRI) in Panama. For more information, see Field Studies and Study Abroad > Panama Field Study Semester. You can also visit the following website for details: www.mcgill.ca/science/student/internships-field/field.

12145123 African Field Study Semester
Revision, August 2011. Start of revision.
The Department of Geography, Faculty of Science, coordinates the 15-credit interdisciplinary African Field Study Semester; see Field Studies and Study Abroad > African Field Study Semester. You can also visit the following website for details: www.mcgill.ca/science/student/internships-field/field.

Revision, August 2011. End of revision.

12.14.6 Biotechnology (BIOT)

12.14.6.1 Location
Sheldon Biotechnology Centre
Lyman Duff Building
3775 University Street
Montreal, Quebec H3A 2B4

Telephone: 514-398-3998

12.14.6.2 About Biotechnology
Biotechnology, the science of understanding, selecting, and promoting useful organisms and specific gene products for commercial and therapeutic purposes, is the success story of this generation. It demands a broad comprehension of biology and engineering as well as detailed knowledge of at least one basic subject such as molecular genetics, protein chemistry, microbiology, or chemical engineering.
The Minor in Biotechnology is offered by the Faculties of Engineering and of Science, and students combine the Minor with the regular departmental Major (or Honours or Faculty) program. The Minor emphasizes an area relevant to biotechnology which is complementary to the main program.

Students should identify their interest in the Biotechnology Minor to their departmental academic adviser and to the program supervisor of the Minor and, at the time of registration for the U2 year, should declare their intent to embark on the Minor. Before registering for the Minor, and with the agreement of the academic adviser, students must submit their course list to the program supervisor, who will certify that the student's complete program conforms to the requirements for the Minor. Students should ensure that they will have fulfilled the prerequisite requirements for the courses selected.

The course BIOT 505 Selected Topics in Biotechnology is considered as a course taught by the Faculty of Science.

12.14.6.3 General Regulations
To obtain the Minor in Biotechnology, students must:
• satisfy the requirements both for the departmental program and for the Minor;
• complete 24 credits, 18 of which must be exclusively for the Minor program;
• obtain a grade of C or better in the courses presented for the Minor.

12.14.6.4 Biotechnology (BIOT) Faculty
Program Supervisor
Professor Hugh P.J. Bennett; B.A.(York, UK), Ph.D.(Brunel)

12.14.6.5 Bachelor of Science (B.Sc.) - Minor Biotechnology (for Science Students) (24 credits)
Revision, August 2011. Start of revision.
To obtain the Minor Biotechnology, Science students must:
a) satisfy both the requirements for the departmental program and for the Minor;
b) complete 24 credits, 18 of which must be exclusively for the Minor program.*
* Approved substitutions must be made for any of the required courses which are part of the student's main program.

Required Courses (15 credits)
* Students usually take either BIOL 201 or BIOC 212.
BIOC 212* (3) Molecular Mechanisms of Cell Function
BIOL 200 (3) Molecular Biology
BIOL 201* (3) Cell Biology and Metabolism
BIOL 202 (3) Basic Genetics
BIOT 505 (3) Selected Topics in Biotechnology
MIMM 211 (3) Introductory Microbiology

**Complementary Courses (9 credits)**
9 credits selected from courses outside the department of the student's main program. Alternatively, or in addition, courses may be taken from the lists below. In which case, at least three courses must be taken from one area of concentration as grouped.

**Biomedicine**
ANAT 541 (3) Cell and Molecular Biology of Aging
EXMD 504 (3) Biology of Cancer
PATH 300 (3) Human Disease

**Chemical Engineering**
CHEE 200 (4) Introduction to Chemical Engineering
CHEE 204 (3) Chemical Manufacturing Processes
CHEE 474 (3) Biochemical Engineering

**Chemistry**
CHEM 382 (3) Organic Chemistry: Natural Products
CHEM 502 (3) Advanced Bio-Organic Chemistry
CHEM 552 (3) Physical Organic Chemistry

**General**
MIME 310 (3) Engineering Economy

**Immunology**
ANAT 261 (4) Introduction to Dynamic Histology
BIOC 503 (3) Immunoochemistry
MIMM 314 (3) Immunology
MIMM 414 (3) Advanced Immunology
PHGY 513 (3) Cellular Immunology

**Management**
ECON 208 (3) Microeconomic Analysis and Applications
MGCR 211 (3) Introduction to Financial Accounting
MGCR 341 (3) Finance 1
MGCR 352 (3) Marketing Management 1
MGCR 472 (3) Operations Management
### Microbiology

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<tr>
<td>MIMM 323</td>
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<td>Microbial Physiology</td>
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<td>MIMM 324</td>
<td>(3)</td>
<td>Fundamental Virology</td>
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<td>MIMM 413</td>
<td>(3)</td>
<td>Parasitology</td>
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<td>MIMM 465</td>
<td>(3)</td>
<td>Bacterial Pathogenesis</td>
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<td>MIMM 466</td>
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### Molecular Biology (Biology)

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<td>BIOL 314</td>
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<td>Molecular Biology of Oncogenes</td>
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<td>BIOL 520</td>
<td>(3)</td>
<td>Gene Activity in Development</td>
</tr>
<tr>
<td>BIOL 524</td>
<td>(3)</td>
<td>Topics in Molecular Biology</td>
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<td>BIOL 551</td>
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<td>Molecular Biology: Cell Cycle</td>
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### Molecular Biology (Biochemistry)

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<td>BIOC 450</td>
<td>(3)</td>
<td>Protein Structure and Function</td>
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<td>BIOC 454</td>
<td>(3)</td>
<td>Nucleic Acids</td>
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<tr>
<td>PSYT 455</td>
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### Physiology

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<td>Physiology and Biochemistry Endocrine Systems</td>
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<tr>
<td>EXMD 502</td>
<td>(3)</td>
<td>Advanced Endocrinology 01</td>
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<tr>
<td>EXMD 503</td>
<td>(3)</td>
<td>Advanced Endocrinology 02</td>
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<tr>
<td>PHAR 562</td>
<td>(3)</td>
<td>General Pharmacology 1</td>
</tr>
<tr>
<td>PHAR 563</td>
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<tr>
<td>PHGY 517</td>
<td>(3)</td>
<td>Artificial Internal Organs</td>
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<td>PHGY 518</td>
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<td>Artificial Cells</td>
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### Pollution

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<tr>
<td>CHEE 593</td>
<td>(3)</td>
<td>Industrial Water Pollution Control</td>
</tr>
<tr>
<td>CIVE 225</td>
<td>(4)</td>
<td>Environmental Engineering</td>
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<tr>
<td>CIVE 430</td>
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<td>Water Treatment and Pollution Control</td>
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<td>CIVE 553</td>
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<td>Stream Pollution and Control</td>
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**Revision, August 2011. End of revision.**

12.14.6.6 Biotechnology (BIOT) Related Programs
12.14.6.1 Program for Students in the Faculty of Engineering

See Faculty of Engineering > Biotechnology Minor for details.
12.14.7 Chemistry (CHEM)

12.14.7.1 Location

Otto Maass Chemistry Building
801 Sherbrooke Street West
Montreal, Quebec H3A 2K6

Website: www.chemistry.mcgill.ca

Departmental Office: Room 322
Telephone: 514-398-6999

Student Advisory Office: Room 314
Website: www.chemistry.mcgill.ca/advising/index.htm

12.14.7.2 Office for Science and Society

The Office for Science and Society is dedicated to the promotion of critical thinking and the presentation of practical scientific information to the public, educators, and students in an accurate and responsible fashion. The Office answers queries from the public as well as from the media, with a view towards establishing scientific accuracy. The Office also offers a variety of educational and interesting presentations on scientific topics and its members contribute to a number of courses under the umbrella of “The World of Chemistry”.

Director

Joseph A. Schwarcz; B.Sc., Ph.D.(McG.)

Members

Ariel Fenster; L.Sc., D.E.A.(Paris), Ph.D.(McG.)


12.14.7.3 About Chemistry

Chemistry is both a pure science, offering a challenging intellectual pursuit, and an applied science whose technology is of fundamental importance to the economy and society. Modern chemists seek an understanding of the structure and properties of atoms and molecules to predict and interpret the properties and transformations of matter and the energy changes that accompany those transformations. Many of the concepts of physics and mathematics are basic to chemistry, while chemistry is of fundamental importance to many other disciplines such as the biological and medical sciences, geology, metallurgy, etc.

A degree in chemistry leads to a wide variety of professional vocations. The large science-based industries (petroleum refining, plastics, pharmaceuticals, etc.) all employ chemists in research, development, and quality control. Many federal and provincial departments and agencies employ chemists in research and testing laboratories. Such positions are expected to increase with the currently growing concern for the environment and for consumer protection. A background in chemistry is also useful as a basis for advanced study in other related fields, such as medicine and the biological sciences. For a business career, a B.Sc. in Chemistry can profitably be combined with a Master's degree in Business Administration, or a study of law for work as a patent lawyer or forensic scientist.

Chemistry courses at the university level are traditionally divided into four areas of specialization: 1) organic chemistry, dealing with the compounds of carbon; 2) inorganic chemistry, concerned with the chemistry and compounds of elements other than carbon; 3) analytical chemistry, which deals with the identification of substances and the quantitative measurement of their compositions; and 4) physical chemistry, which treats the physical laws, kinetics, and energetics governing chemical reactions, behavior of materials, and molecular structure. Naturally, there is a great deal of overlap between these different areas, and the boundaries are becoming increasingly blurred. After a general course at the introductory level, courses in organic, inorganic, analytical, and physical chemistry are offered throughout the university years. Since chemistry is an experimental science, laboratory classes accompany most undergraduate courses. In addition, courses are offered in polymer, theoretical, green, nano, and biological chemistry to upper-year undergraduates.

There are two main programs in the Department of Chemistry: Honours and Major. The Honours program is intended primarily for students wishing to pursue graduate studies in chemistry. While the Major program is somewhat less specialized, it is still recognized as sufficient training for a career in chemistry. It can also lead to graduate studies although an additional qualifying year may be necessary. There are also a number of B.Sc. Liberal and other programs available. Interested students may inquire about these at the Student Advisory Office, Room 314, Otto Mass Chemistry Building, or see www.chemistry.mcgill.ca/advising/index.htm.

12.14.7.4 Chemistry (CHEM) Faculty

Chair

R. Bruce Lennox
### Emeritus Professors

<table>
<thead>
<tr>
<th>Name</th>
<th>Degrees and Institutions</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tak-Hang Chan</td>
<td>B.Sc.(Tor.), M.A., Ph.D.(Princ.), F.C.I.C., F.R.S.C.</td>
<td>Tomlinson Emeritus Professor of Chemistry</td>
</tr>
<tr>
<td>Adi Eisenberg</td>
<td>B.S. (Worcester Polytech.), M.A., Ph.D.(Princ.), F.C.I.C.</td>
<td>Otto Maass Professor of Chemistry</td>
</tr>
<tr>
<td>Byung Chan Eu</td>
<td>B.Sc. (Seoul), Ph.D.(Brown)</td>
<td></td>
</tr>
<tr>
<td>John F. Harrod</td>
<td>B.Sc., Ph.D.(Birm.)</td>
<td>Tomlinson Emeritus Professor of Chemistry</td>
</tr>
<tr>
<td>Robert H. Marchessault</td>
<td>B.Sc. (Loyola), Ph.D.(McG.), D.Sc.(C'dia), F.R.S.C.</td>
<td>E.B. Eddy Professor of Industrial Chemistry</td>
</tr>
<tr>
<td>Mario Onyszchuk</td>
<td>B.Sc. (McG.), M.Sc.(W. Ont.), Ph.D.(McG.), Ph.D.(Cant.)</td>
<td></td>
</tr>
<tr>
<td>Donald Patterson</td>
<td>M.Sc. (McG.), Doc.(St-Etienne)</td>
<td>Otto Maass Emeritus Professor of Chemistry</td>
</tr>
<tr>
<td>Arthur S. Perlin</td>
<td>M.Sc., Ph.D.(McG.), F.R.S.C.</td>
<td>E.B. Eddy Emeritus Professor of Industrial Chemistry</td>
</tr>
<tr>
<td>Leon E. St-Pierre</td>
<td>B.Sc.(Alta.), Ph.D.(Notre Dame), F.C.I.C.</td>
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<tr>
<td>Michael A. Whitehead</td>
<td>B.Sc., Ph.D., D.Sc.(Lond.), F.C.I.C.</td>
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</table>

### Professors

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<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Bruce Arndtsen</td>
<td>B.A.(Car. College), Ph.D.(Stan.)</td>
<td>William Dawson Scholar</td>
</tr>
<tr>
<td>D. Scott Bohle</td>
<td>B.A. (Reed College), M.Phil., Ph.D.(Auck.)</td>
<td>CRC Tier I Chair</td>
</tr>
<tr>
<td>David H. Burns</td>
<td>B.Sc.(Puget Sound), Ph.D.(Wash.)</td>
<td></td>
</tr>
<tr>
<td>Masad J. Damha</td>
<td>B.Sc., Ph.D.(McG.)</td>
<td>James McGill Professor</td>
</tr>
<tr>
<td>Derek G. Gray</td>
<td>B.Sc.(Belf.), M.Sc., Ph.D.(Manit.), F.C.I.C.</td>
<td>NSERC Paprican Chair</td>
</tr>
<tr>
<td>R. Bruce Lennox</td>
<td>B.Sc., M.Sc., Ph.D.(Tor.)</td>
<td>Tomlinson Professor of Chemistry</td>
</tr>
<tr>
<td>C.J. Li</td>
<td>B.Sc.(Zhengzhou), M.Sc.(C.A.S.), Ph.D.(McG.)</td>
<td>CRC Tier I Chair</td>
</tr>
<tr>
<td>David Ronis</td>
<td>B.Sc.(McG.), Ph.D.(MIT)</td>
<td></td>
</tr>
<tr>
<td>Eric D. Salin</td>
<td>B.Sc.(Calif.), Ph.D.(Ore. St.)</td>
<td></td>
</tr>
<tr>
<td>Bryan C. Sanctuary</td>
<td>B.Sc., Ph.D.(Br. Col.)</td>
<td></td>
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<tr>
<td>Hanadi Sleiman</td>
<td>B.Sc.(A.U.B.), Ph.D.(Stan.)</td>
<td>William Dawson Scholar</td>
</tr>
<tr>
<td>Theo G.M. van de Ven</td>
<td>Kand. Doc.(Utrecht), Ph.D.(McG.)</td>
<td>NSERC Paprican Chair</td>
</tr>
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</table>

### Associate Professors

<table>
<thead>
<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Mark P. Andrews</td>
<td>B.Sc., M.Sc., Ph.D.(Tor.)</td>
<td></td>
</tr>
<tr>
<td>Parisa Ariya</td>
<td>B.Sc., Ph.D.(York)</td>
<td>William Dawson Scholar (joint appt. with Atmospheric &amp; Oceanic Sciences)</td>
</tr>
<tr>
<td>Karine Auclair</td>
<td>B.Sc.(UQAC), Ph.D.(Alta.)</td>
<td></td>
</tr>
<tr>
<td>Christopher J. Barrett</td>
<td>B.Sc., M.Sc., Ph.D.(Qu.)</td>
<td></td>
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<tr>
<td>William C. Galley</td>
<td>B.Sc.(McG.), Ph.D.(Calif.)</td>
<td></td>
</tr>
<tr>
<td>James Gleason</td>
<td>B.Sc.(McG.), Ph.D.(Virg.)</td>
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</tr>
<tr>
<td>Ashok K. Kakkar</td>
<td>B.Sc.(Punjab), M.Sc.(H.P.U.), Ph.D.(Wat.)</td>
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<tr>
<td>Patanjali Kambhampati</td>
<td>B.A.(Car. Coll.), Ph.D.(Texas)</td>
<td></td>
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<tr>
<td>Nicolas Moissisier</td>
<td>B.Sc., M.Sc., Ph.D.(Nancy)</td>
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<tr>
<td>Dmitrii Perepichka</td>
<td>B.S., M.Sc., Ph.D.(Ukraine)</td>
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<tr>
<td>Joan F. Power</td>
<td>B.Sc., Ph.D.(C'dia)</td>
<td></td>
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</tbody>
</table>
Associate Professors
Linda Reven; B.A.(Car. Coll.), Ph.D.(Ill.)
Youla Tsantrizos; B.Sc., M.Sc., Ph.D.(McG.)
Paul Wiseman; B.Sc.(St. FX), Ph.D.(W. Ont.) (joint appt. with Physics)

Assistant Professors
Amy S. Blum; B.S.(Princ.), M.S., Ph.D.(Wash.)
Michel Bourqui; B.Sc.(EPF Lausanne), Ph.D.(ETH Zürich) (joint appt. with Atmospheric & Oceanic Sciences)
Gonzalo Cosa; B.Sc.(Rio Cuarto), Ph.D.(Ott.)
Anthony Mittermaier; B.Sc.(Guelph), Ph.D.(Tor.)
Audrey Moores; B.Sc., M.Sc., Ph.D.(École Poly., Palaiseau, Fr.) (Fac. Sci. Tier II Chair)
Bradley Siwick; B.A.Sc., M.Sc., Ph.D.(Tor.) (joint appt. with Physics)

Associate Members
James A. Finch (Mining & Metallurgical Engineering)
P. Grütter (Physics)
Esther Schirrmacher (Medicine)
Ralf Schirrmacher (Medicine)

Adjunct Professors
Yvan Guindon; B.Sc., Ph.D.(Montr.), F.C.I.C., F.R.S.C.
Christian Reber; B.Sc., Ph.D.(Berne)
Ivor Wharf; B.Sc., Ph.D.(Lond.), A.R.C.S., D.I.C.
Robert Zamboni; B.Sc., Ph.D.(McG.)

12.14.7.5 Bachelor of Science (B.Sc.) - Minor Chemistry (18 credits)

Required Courses (18 credits)
* Denotes courses with CEGEP equivalents.
Substitutions for these by more advanced courses may be made at the discretion of the Adviser.
CHEM 203 (3) Survey of Physical Chemistry
CHEM 212* (4) Introductory Organic Chemistry 1
CHEM 222* (4) Introductory Organic Chemistry 2
CHEM 253 (1) Introductory Physical Chemistry 1 Laboratory
CHEM 281 (3) Inorganic Chemistry 1
CHEM 287 (2) Introductory Analytical Chemistry
CHEM 297 (1) Introductory Analytical Chemistry Laboratory

12.14.7.6 Bachelor of Science (B.Sc.) - Minor Chemical Engineering (24 credits)
A Chemical Engineering Minor will be of interest to Chemistry students who wish to study the problems of process engineering and its related subjects. A student completing this Minor will be able to make the important link between molecular sciences and industrial processing. This Minor will not provide Professional Engineering accreditation.

Required Courses (7 credits)
CHEE 200 (4) Introduction to Chemical Engineering
Complementary Courses (17 credits)

At least one of:

CHEE 220 (3) Chemical Engineering Thermodynamics
CHEE 314 (4) Fluid Mechanics

with the remainder chosen from the following:

* Students select CHEE 392 and CHEE 393
** Students select either CHEE 494 or CHEE 495

CHEE 230 (3) Environmental Aspects of Technology
CHEE 315 (4) Heat and Mass Transfer
CHEE 351 (3) Separation Processes
CHEE 370 (3) Elements of Biotechnology
CHEE 380 (3) Materials Science
CHEE 392* (4) Project Laboratory 1
CHEE 393* (5) Project Laboratory 2
CHEE 438 (3) Engineering Principles in Pulp and Paper Processes
CHEE 452 (3) Particulate Systems
CHEE 487 (3) Chemical Processing: Electronics Industry
CHEE 494** (3) Research Project and Seminar 1
CHEE 495** (4) Research Project and Seminar 2
CHEE 592 (3) Industrial Air Pollution Control
CHEE 593 (3) Industrial Water Pollution Control
MATH 314 (3) Advanced Calculus

12.14.7.7 Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Chemistry - Biological (47 credits)

Program Prerequisites

PRE-PROGRAM REQUIREMENTS:

Students entering from the Freshman program must have included CHEM 110 and CHEM 120 or CHEM 115, BIOL 111 or BIOL 112, MATH 133, MATH 140/MATH 141 or MATH 150/MATH 151, or their equivalents in their Freshman year. Quebec students must have completed the DEC with appropriate science and mathematics courses. Note that students who have successfully completed MATH 150 and MATH 151 do not have to take MATH 222.

Required Basic Core Courses (26 credits)

The required courses in this program consist of 26 credits in chemistry and mathematics, listed below. The courses marked with an asterisk (*) are omitted from the program of students who have successfully completed them at CEGEP. Students from outside Quebec or transfer students should consult the Academic Adviser.


The Liberal Program: Core Science Component in Chemistry - Biological Option is not certified by the Ordre des chimistes du Québec. Students interested in pursuing a career in Chemistry in Quebec are advised to take an appropriate B.Sc. program in Chemistry.

A computer science course, either COMP 202 or COMP 208, is strongly recommended during U1 for students who have no previous introduction to computer programming. Students should contact their adviser on this matter. Completion of Mathematics MATH 222 during U1 is strongly recommended.

* Denotes courses with CEGEP equivalents.
** Students who have successfully completed MATH 150 and MATH 151 are not required to take MATH 222.
CHEM 212* (4) Introductory Organic Chemistry 1
CHEM 222* (4) Introductory Organic Chemistry 2
CHEM 223 (2) Introductory Physical Chemistry 1
CHEM 243 (2) Introductory Physical Chemistry 2
CHEM 253 (1) Introductory Physical Chemistry 1 Laboratory
CHEM 263 (1) Introductory Physical Chemistry 2 Laboratory
CHEM 281 (3) Inorganic Chemistry 1
CHEM 287 (2) Introductory Analytical Chemistry
CHEM 297 (1) Introductory Analytical Chemistry Laboratory
CHEM 381 (3) Inorganic Chemistry 2
MATH 222** (3) Calculus 3

Biological Option Courses (21 credits)

BIOL 200 (3) Molecular Biology
BIOL 201 (3) Cell Biology and Metabolism
CHEM 302 (3) Introductory Organic Chemistry 3
CHEM 352 (3) Structural Organic Chemistry
CHEM 382 (3) Organic Chemistry: Natural Products
CHEM 392 (3) Integrated Inorganic/Organic Laboratory
CHEM 502 (3) Advanced Bio-Organic Chemistry

12.14.7.8 Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Chemistry - General (49 credits)

Program Prerequisites

PRE-PROGRAM REQUIREMENTS:

Students entering from the Freshman program must have included CHEM 110 and CHEM 120 or CHEM 115, BIOL 111 or BIOL 112, MATH 133, MATH 140/MATH 141 or MATH 150/MATH 151, PHYS 131/PHYS 142, or their equivalents in their Freshman year. Quebec students must have completed the DEC with appropriate science and mathematics courses. Note that students who have successfully completed MATH 150 and MATH 151 do not have to take MATH 222.

Required Basic Core Courses (26 credits)

The required courses in this program consist of 26 credits in chemistry and mathematics listed below. The courses marked with an asterisk (*) are omitted from the program of students who have successfully completed them at the CEGEP level. Students from outside Quebec or transfer students should consult the Academic Adviser.


The Liberal Program: Core Science Component Chemistry - General Option is not certified by the Ordre des chimistes du Québec. Students interested in pursuing a career in Chemistry in Quebec are advised to take an appropriate B.Sc. program in Chemistry.

A computer science course, either COMP 202 or COMP 208, is strongly recommended during U1 for students who have no previous introduction to computer programming. Students should contact their adviser on this matter. Completion of Mathematics MATH 222 during U1 is strongly recommended.

* Denotes courses with CEGEP equivalents.

** Students who have successfully completed MATH 150 and MATH 151 are not required to take MATH 222.

CHEM 212* (4) Introductory Organic Chemistry 1
CHEM 222* (4) Introductory Organic Chemistry 2
CHEM 223 (2) Introductory Physical Chemistry 1
CHEM 243 (2) Introductory Physical Chemistry 2
CHEM 253 (1) Introductory Physical Chemistry 1 Laboratory
CHEM 263 (1) Introductory Physical Chemistry 2 Laboratory
CHEM 281 (3)  Inorganic Chemistry 1
CHEM 287 (2)  Introductory Analytical Chemistry
CHEM 297 (1)  Introductory Analytical Chemistry Laboratory
CHEM 381 (3)  Inorganic Chemistry 2
MATH 222** (3)  Calculus 3

General Option Courses (20 credits)
CHEM 302 (3)  Introductory Organic Chemistry 3
CHEM 345 (3)  Molecular Properties and Structure 1
CHEM 367 (3)  Instrumental Analysis 1
CHEM 377 (3)  Instrumental Analysis 2
CHEM 392 (3)  Integrated Inorganic/Organic Laboratory
MATH 315 (3)  Ordinary Differential Equations
PHYS 242 (2)  Electricity and Magnetism

Complementary Course (3 credits)
3 credits from:
CHEM 352 (3)  Structural Organic Chemistry
CHEM 355 (3)  Molecular Properties and Structure 2

12.14.7.9 Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Chemistry - Physical (47 credits)

Program Prerequisites
PRE-PROGRAM REQUIREMENTS:
Students entering from the Freshman program must have included CHEM 110 and CHEM 120 or CHEM 115, BIOL 111 or BIOL 112, MATH 133, MATH 140/MATH 141 or MATH 150/MATH 151, PHYS 131/PHYS 142, or their equivalents in their Freshman year. Quebec students must have completed the DEC with appropriate science and mathematics courses. Note that students who have successfully completed MATH 150 and MATH 151 do not have to take MATH 222.

Required Basic Core Courses (26 credits)
The required courses in this program consist of 26 credits in chemistry and mathematics, listed below. The courses marked with an asterisk (*) are omitted from the program of students who have successfully completed them at CEGEP. Students from outside Quebec or transfer students should consult the Academic Adviser.


The Liberal Program: Core Science Component Chemistry - Physical Option is not certified by the Ordre des chimistes du Québec. Students interested in pursuing a career in Chemistry in Quebec are advised to take an appropriate B.Sc. program in Chemistry.

A computer science course, either COMP 202 or COMP 208, is strongly recommended during U1 for students who have no previous introduction to computer programming. Students should contact their adviser on this matter. Completion of Mathematics MATH 222 during U1 is also strongly recommended.

* Denotes courses with CEGEP equivalents.
** Students who have successfully completed MATH 150 and MATH 151 are not required to take MATH 222.

CHEM 212* (4)  Introductory Organic Chemistry 1
CHEM 222* (4)  Introductory Organic Chemistry 2
CHEM 223 (2)  Introductory Physical Chemistry 1
CHEM 243 (2)  Introductory Physical Chemistry 2
CHEM 253 (1)  Introductory Physical Chemistry 1 Laboratory
CHEM 263 (1)  Introductory Physical Chemistry 2 Laboratory
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<td>CHEM 381</td>
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<td>MATH 222**</td>
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<td>Calculus 3</td>
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**Physical Option Courses (21 credits)**

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<tr>
<td>COMP 208</td>
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<td>Computers in Engineering</td>
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<td>MATH 223</td>
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<td>PHYS 242</td>
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<td>Electricity and Magnetism</td>
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</table>

**Bachelor of Science (B.Sc.) - Major Chemistry (59 credits)**

**Program Prerequisites**

**PRE-PROGRAM REQUIREMENTS:**

Students entering from the Freshman program must have included CHEM 110 and CHEM 120 or CHEM 115, BIOL 111 or BIOL 112, MATH 133, MATH 140/MATH 141 or MATH 150/MATH 151, PHYS 131/PHYS 142, or their equivalents in their Freshman year. Quebec students must have completed the DEC with appropriate science and mathematics courses. Note that students who have successfully completed MATH 150 and MATH 151 do not have to take MATH 222.

**Required Courses (53 credits)**

The required courses in this program consist of 53 credits in chemistry, physics and mathematics, listed below. The courses marked with an asterisk (*) are omitted from the program of students who have successfully completed them at the CEGEP level but the Chemistry courses must be replaced by courses in that discipline if students wish to be eligible for admission to the Ordre des chimistes du Québec. Students from outside Quebec or transfer students should consult the Academic Adviser.


A computer science course, either COMP 202 or COMP 208, is strongly recommended during U1 for students who have no previous introduction to computer programming. Students should contact their adviser on this matter. Completion of Mathematics MATH 222 and MATH 315 during U1 is also strongly recommended. Physics PHYS 242 should be completed during U2.

* Denotes courses with CEGEP equivalents.

** Students who have successfully completed MATH 150 and MATH 151 are not required to take MATH 222.

<table>
<thead>
<tr>
<th>Course Code</th>
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<td>CHEM 222*</td>
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<td>CHEM 263</td>
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<td>Introductory Physical Chemistry 2 Laboratory</td>
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<tr>
<td>CHEM 281</td>
<td>3</td>
<td>Inorganic Chemistry 1</td>
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<tr>
<td>CHEM 287</td>
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<td>Introductory Analytical Chemistry</td>
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<tr>
<td>CHEM 297</td>
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<td>Introductory Analytical Chemistry Laboratory</td>
</tr>
<tr>
<td>CHEM 302</td>
<td>3</td>
<td>Introductory Organic Chemistry 3</td>
</tr>
<tr>
<td>CHEM 345</td>
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<td>Molecular Properties and Structure 1</td>
</tr>
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</table>
Chemistry 355 (3) Molecular Properties and Structure 2
Chemistry 365 (2) Statistical Thermodynamics
Chemistry 367 (3) Instrumental Analysis 1
Chemistry 377 (3) Instrumental Analysis 2
Chemistry 381 (3) Inorganic Chemistry 2
Chemistry 392 (3) Integrated Inorganic/Organic Laboratory
Chemistry 393 (2) Physical Chemistry Laboratory 2
Mathematics 222** (3) Calculus 3
Mathematics 315 (3) Ordinary Differential Equations
Physics 242 (2) Electricity and Magnetism

Complementary Courses (6 credits)
6 credits of additional Chemistry (CHEM) courses at the 300 level or higher.

12.14.7.11 Bachelor of Science (B.Sc.) - Major Chemistry - Atmosphere and Environment (63 credits)

Program Prerequisites
PRE-PROGRAM REQUIREMENTS:
Students entering from the freshman program must have included CHEM 110 and CHEM 120 or CHEM 115, BIOL 111 or BIOL 112, MATH 133, MATH 140/MATH 141 or MATH 150/MATH 151, or their equivalents in their freshman year. Quebec students must have completed the DEC with appropriate science and mathematics courses. Note that students who have successfully completed MATH 150 and MATH 151 do not have to take MATH 222.

Required Courses (54 credits)
The required courses in this program consist of 54 credits in chemistry and mathematics, listed below. The courses marked with an asterisk (*) are omitted from the program of students who have successfully completed them at the CEGEP level but the Chemistry courses must be replaced by courses in that discipline if students wish to be eligible for admission to the Ordre des chimistes du Quebec. Students from outside Quebec or transfer students should consult the Academic Adviser.


A computer science course, either COMP 202 or COMP 208, is strongly recommended during U1 for students who have no previous introduction to computer programming. Students should contact their adviser on this matter. Completion of Mathematics MATH 222 and MATH 315 during U1 is also strongly recommended.

* Denotes courses with CEGEP equivalents.

** Students who have successfully completed MATH 150 and MATH 151 are not required to take MATH 222.

Chemistry 212* (4) Introductory Organic Chemistry 1
Chemistry 219 (3) Introduction to Atmospheric Chemistry
Chemistry 222* (4) Introductory Organic Chemistry 2
Chemistry 223 (2) Introductory Physical Chemistry 1
Chemistry 243 (2) Introductory Physical Chemistry 2
Chemistry 253 (1) Introductory Physical Chemistry 1 Laboratory
Chemistry 263 (1) Introductory Physical Chemistry 2 Laboratory
Chemistry 281 (3) Inorganic Chemistry 1
Chemistry 287 (2) Introductory Analytical Chemistry
Chemistry 297 (1) Introductory Analytical Chemistry Laboratory
Chemistry 302 (3) Introductory Organic Chemistry 3
Chemistry 345 (3) Molecular Properties and Structure 1
Chemistry 355 (3) Molecular Properties and Structure 2
Chemistry 365 (2) Statistical Thermodynamics
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<td>MATH 222**</td>
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<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 315</td>
<td>3</td>
<td>Ordinary Differential Equations</td>
</tr>
</tbody>
</table>

**Complementary Courses (9 credits)**

3 credits, one of:

- CHEM 419 (3) Advances in Chemistry of Atmosphere
- CHEM 462 (3) Green Chemistry

3 credits, one of:

- ATOC 214 (3) Introduction: Physics of the Atmosphere
- CHEM 307 (3) Analytical Chemistry of Pollutants
- CHEM 352 (3) Structural Organic Chemistry
- MATH 317 (3) Numerical Analysis

3 credits, one of:

- ATOC 315 (3) Thermodynamics and Convection
- ATOC 412 (3) Atmospheric Dynamics
- CHEM 567 (3) Chemometrics: Data Analysis
- CHEM 575 (3) Chemical Kinetics
- CHEM 597 (3) Analytical Spectroscopy
- EPSC 542 (3) Chemical Oceanography

**12.14.7.12 Bachelor of Science (B.Sc.) - Major Chemistry - Bio-organic (63 credits)**

**Program Prerequisites**

**PRE-PROGRAM REQUIREMENTS:**

Students entering from the Freshman program must have included CHEM 110 and CHEM 120 or CHEM 115, BIOL 111 or BIOL 112, MATH 133, MATH 140/MATH 141 or MATH 150/MATH 151, PHYS 131/PHYS 142, or their equivalents in their Freshman year. Quebec students must have completed the DEC with appropriate science and mathematics courses. Note that students who have successfully completed MATH 150 and MATH 151 do not have to take MATH 222.

**Required Courses (60 credits)**

The required courses in this program consist of 60 credits in chemistry, biology and mathematics, listed below. The courses marked with an asterisk (*) are omitted from the program of students who have successfully completed them at the CEGEP level but the Chemistry courses must be replaced by courses in that discipline if students wish to be eligible for admission to the Ordre des chimistes du Québec. Students from outside Quebec or transfer students should consult the Academic Adviser.


A computer science course, either COMP 202 or COMP 208, is strongly recommended during U1 for students who have no previous introduction to computer programming. Students should contact their adviser on this matter. Completion of Mathematics MATH 222 and MATH 315 during U1 is also strongly recommended.

* Denotes courses with CEGEP equivalents.
Students who have successfully completed MATH 150 and MATH 151 are not required to take MATH 222.

<table>
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<td>BIOL 201</td>
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<td>Cell Biology and Metabolism</td>
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<td>CHEM 222*</td>
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<tr>
<td>CHEM 281</td>
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<td>CHEM 287</td>
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<td>CHEM 502</td>
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<td>MATH 222**</td>
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<td>MATH 315</td>
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<td>Ordinary Differential Equations</td>
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Complementary Course (3 credits)

One of:

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<tr>
<th>Course Code</th>
<th>Credits</th>
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<tr>
<td>BIOL 202</td>
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<td>Basic Genetics</td>
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<td>BIOL 301</td>
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<td>MIMM 211</td>
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<td>PHGY 201</td>
<td>3</td>
<td>Human Physiology: Control Systems</td>
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<td>PHGY 202</td>
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<td>Human Physiology: Body Functions</td>
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<td>PHGY 209</td>
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12.14.7.13 Bachelor of Science (B.Sc.) - Major Chemistry - Materials (62 credits)

Program Prerequisites

PRE-PROGRAM REQUIREMENTS:

Students entering from the Freshman program must have included CHEM 110 and CHEM 120 or CHEM 115, BIOL 111 or BIOL 112, MATH 133, MATH 140/MATH 141 or MATH 150/MATH 151, PHYS 131/PHYS 142, or their equivalents in their Freshman year. Quebec students must have completed the DEC with appropriate science and mathematics courses. Note that students who have successfully completed MATH 150 and MATH 151 do not have to take MATH 222.

Required Courses (59 credits)
The required courses in this program consist of 59 credits in chemistry, physics and mathematics, listed below. The courses marked with an asterisk (*) are omitted from the program of students who have successfully completed them at the CEGEP level but the Chemistry courses must be replaced by courses in that discipline if students wish to be eligible for admission to the Ordre des chimistes du Québec. Students from outside Quebec or transfer students should consult the Academic Adviser.


A computer science course, either COMP 202 or COMP 208, is strongly recommended during U1 for students who have no previous introduction to computer programming. Students should contact their adviser on this matter. Completion of Mathematics MATH 222 and MATH 315 during U1 is also strongly recommended. Physics PHYS 242 should be completed during U2.

* Denotes courses with CEGEP equivalents.

** Students who have successfully completed MATH 150 and MATH 151 are not required to take MATH 222.

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<td>CHEM 223</td>
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<td>CHEM 574</td>
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<td>MATH 315</td>
<td>Ordinary Differential Equations</td>
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<tr>
<td>PHYS 242</td>
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** Complementary Course (3 credits)**

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<td>CHEM 534</td>
<td>Nanoscience and Nanotechnology</td>
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<td>CHEM 543</td>
<td>Chemistry of Pulp and Paper</td>
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<td>CHEM 571</td>
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<td>CHEM 585</td>
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**12.14.7.14 Bachelor of Science (B.Sc.) - Honours Chemistry (71 credits)**

Note: Attainment of the Honours degree requires a CGPA of at least 3.00.

**Program Prerequisites**
PRE-PROGRAM REQUIREMENTS:

Students entering from the Freshman program must have included CHEM 110 and CHEM 120 or CHEM 115, BIOL 111 or BIOL 112, MATH 133, MATH 140/MATH 141 or MATH 150/MATH 151, PHYS 131/PHYS 142, or their equivalents in their Freshman year. Quebec students must have completed the DEC with appropriate science and mathematics courses. Note that students who have successfully completed MATH 150 and MATH 151 do not have to take MATH 222.

Required Courses (53 credits)

The required courses in this program consist of 53 credits in chemistry, physics and mathematics, listed below. The courses marked with an asterisk (*) are omitted from the program of students who have successfully completed them at the CEGEP level but the Chemistry courses must be replaced by courses in that discipline if students wish to be eligible for admission to the Ordre des chimistes du Québec. Students from outside Quebec or transfer students should consult the Academic Adviser.


A computer science course, either COMP 202 or COMP 208, is strongly recommended during U1 for students who have no previous introduction to computer programming. Students should contact their adviser on this matter. Completion of Mathematics MATH 222 and MATH 315 during U1 is also strongly recommended. Physics PHYS 242 should be completed during U2.

Denotes courses with CEGEP equivalents.

** Students who have successfully completed MATH 150 and MATH 151 are not required to take MATH 222.

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<tr>
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</tr>
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<td>CHEM 243</td>
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</tr>
<tr>
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<td>Introductory Physical Chemistry 2 Laboratory</td>
</tr>
<tr>
<td>CHEM 281</td>
<td>281</td>
<td>Inorganic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 287</td>
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</tr>
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<td>CHEM 297</td>
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</tr>
<tr>
<td>CHEM 302</td>
<td>302</td>
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</tr>
<tr>
<td>CHEM 345</td>
<td>345</td>
<td>Molecular Properties and Structure 1</td>
</tr>
<tr>
<td>CHEM 355</td>
<td>355</td>
<td>Molecular Properties and Structure 2</td>
</tr>
<tr>
<td>CHEM 365</td>
<td>365</td>
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<td>CHEM 367</td>
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<td>Instrumental Analysis 1</td>
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<tr>
<td>CHEM 377</td>
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<tr>
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<td>CHEM 392</td>
<td>392</td>
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</tr>
<tr>
<td>CHEM 393</td>
<td>393</td>
<td>Physical Chemistry Laboratory 2</td>
</tr>
<tr>
<td>MATH 222**</td>
<td>222</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 315</td>
<td>315</td>
<td>Ordinary Differential Equations</td>
</tr>
<tr>
<td>PHYS 242</td>
<td>242</td>
<td>Electricity and Magnetism</td>
</tr>
</tbody>
</table>

Complementary Courses (18 credits)

6 credits of research*:

Students may take up to 12 Research Project credits but only 6 of these may be used to fulfil the program requirement.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Code</th>
<th>Course Name</th>
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<tr>
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</tr>
<tr>
<td>CHEM 490D2</td>
<td>490</td>
<td>Research Project 3</td>
</tr>
</tbody>
</table>
12 credits of additional Chemistry courses as follows:

6 credits of which must be at the 300 level or higher, and
6 credits of which must be at the 400 level or higher.

12.14.7.15 Bachelor of Science (B.Sc.) - Honours Chemistry - Bio-organic (75 credits)

Note: Attainment of the Honours degree requires a CGPA of at least 3.00.

Program Prerequisites

PRE-PROGRAM REQUIREMENTS:

Students entering from the Freshman program must have included CHEM 110 and CHEM 120 or CHEM 115, BIOL 111 or BIOL 112, MATH 133, MATH 140/MATH 141 or MATH 150/MATH 151, PHYS 131/PHYS 142, or their equivalents in their Freshman year. Quebec students must have completed the DEC with appropriate science and mathematics courses. Note that students who have successfully completed MATH 150 and MATH 151 do not have to take MATH 222.

Required Courses (57 credits)

The required courses in this program consist of 57 credits in chemistry, biology and mathematics, listed below. The courses marked with an asterisk (*) are omitted from the program of students who have successfully completed them at the CEGEP level but the Chemistry courses must be replaced by courses in that discipline if students wish to be eligible for admission to the Ordre des chimistes du Québec. Students from outside Quebec or transfer students should consult the Academic Adviser.


A computer science course, either COMP 202 or COMP 208, is strongly recommended during U1 for students who have no previous introduction to computer programming. Students should contact their adviser on this matter. Completion of Mathematics MATH 222 and MATH 315 during U1 is also strongly recommended.

* Denotes courses with CEGEP equivalents.

** Students who have successfully completed MATH 150 and MATH 151 are not required to take MATH 222.

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<thead>
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<th>Course</th>
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<td>BIOL 201</td>
<td>Cell Biology and Metabolism</td>
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<td>CHEM 212*</td>
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<td>CHEM 222*</td>
<td>Introductory Organic Chemistry 2</td>
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</tr>
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<td>CHEM 263</td>
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<tr>
<td>CHEM 281</td>
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<td>CHEM 287</td>
<td>Introductory Analytical Chemistry</td>
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<tr>
<td>CHEM 297</td>
<td>Introductory Analytical Chemistry Laboratory</td>
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<tr>
<td>CHEM 302</td>
<td>Introductory Organic Chemistry 3</td>
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<td>CHEM 345</td>
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<td>CHEM 355</td>
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<td>CHEM 365</td>
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<td>CHEM 367</td>
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</tr>
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<td>CHEM 377</td>
<td>Instrumental Analysis 2</td>
<td>3</td>
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<tr>
<td>CHEM 381</td>
<td>Inorganic Chemistry 2</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 392</td>
<td>Integrated Inorganic/Organic Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 393</td>
<td>Physical Chemistry Laboratory 2</td>
<td>2</td>
</tr>
<tr>
<td>MATH 222**</td>
<td>Calculus 3</td>
<td>3</td>
</tr>
<tr>
<td>MATH 315</td>
<td>Ordinary Differential Equations</td>
<td>3</td>
</tr>
</tbody>
</table>
Complementary Courses (18 credits)

18 credits selected as follows:

6 credits of research*:

* Students may take up to 12 Research Project credits but only 6 of these may be used to fulfill the program requirement.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Research Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 470</td>
<td>6</td>
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<tr>
<td>CHEM 480</td>
<td>3</td>
<td>Research Project 2</td>
</tr>
<tr>
<td>CHEM 490D1</td>
<td>1.5</td>
<td>Research Project 3</td>
</tr>
<tr>
<td>CHEM 490D2</td>
<td>1.5</td>
<td>Research Project 3</td>
</tr>
</tbody>
</table>

6 credits, two of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 202</td>
<td>3</td>
<td>Basic Genetics</td>
</tr>
<tr>
<td>BIOL 301</td>
<td>4</td>
<td>Cell and Molecular Laboratory</td>
</tr>
<tr>
<td>CHEM 502</td>
<td>3</td>
<td>Advanced Bio-Organic Chemistry</td>
</tr>
<tr>
<td>MIMM 211</td>
<td>3</td>
<td>Introductory Microbiology</td>
</tr>
<tr>
<td>MIMM 314</td>
<td>3</td>
<td>Immunology</td>
</tr>
<tr>
<td>MIMM 323</td>
<td>3</td>
<td>Microbial Physiology</td>
</tr>
<tr>
<td>PHGY 201</td>
<td>3</td>
<td>Human Physiology: Control Systems</td>
</tr>
<tr>
<td>PHGY 202</td>
<td>3</td>
<td>Human Physiology: Body Functions</td>
</tr>
<tr>
<td>PHGY 209</td>
<td>3</td>
<td>Mammalian Physiology 1</td>
</tr>
<tr>
<td>PHGY 210</td>
<td>3</td>
<td>Mammalian Physiology 2</td>
</tr>
</tbody>
</table>

and 6 credits of additional Chemistry courses at the 400 level or higher.

12.14.7.16 Bachelor of Science (B.Sc.) - Honours Chemistry - Atmosphere and Environment (75 credits)

Note: Attainment of the Honours degree requires a CGPA of at least 3.00.

Program Prerequisites

PRE-PROGRAM REQUIREMENTS:

Students entering from the Freshman program must have included CHEM 110 and CHEM 120 or CHEM 115, BIOL 111 or BIOL 112, MATH 133, MATH 140/MATH 141 or MATH 150/MATH 151, PHYS 131/PHYS 142, or their equivalents in their Freshman year. Quebec students must have completed the DEC with appropriate science and mathematics courses. Note that students who have successfully completed MATH 150 and MATH 151 do not have to take MATH 222.

Required Courses (60 credits)

The required courses in this program consist of 60 credits in chemistry and mathematics, listed below. The courses marked with an asterisk (*) are omitted from the program of students who have successfully completed them at the CEGEP level but the Chemistry courses must be replaced by courses in that discipline if students wish to be eligible for admission to the Ordre des chimistes du Québec. Students from outside Quebec or transfer students should consult the Academic Adviser.


A computer science course, either COMP 202 or COMP 208, is strongly recommended during U1 for students who have no previous introduction to computer programming. Students should contact their Adviser on this matter. Completion of Mathematics MATH 222 and MATH 315 during U1 is also strongly recommended.

* Denotes courses with CEGEP equivalents.

** Students who have successfully completed MATH 150 and MATH 151 are not required to take MATH 222.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 212*</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 219</td>
<td>3</td>
<td>Introduction to Atmospheric Chemistry</td>
</tr>
</tbody>
</table>
CHEM 222* (4) Introductory Organic Chemistry 2
CHEM 223 (2) Introductory Physical Chemistry 1
CHEM 243 (2) Introductory Physical Chemistry 2
CHEM 253 (1) Introductory Physical Chemistry 1 Laboratory
CHEM 263 (1) Introductory Physical Chemistry 2 Laboratory
CHEM 281 (3) Inorganic Chemistry 1
CHEM 287 (2) Introductory Analytical Chemistry
CHEM 297 (1) Introductory Analytical Chemistry Laboratory
CHEM 302 (3) Introductory Organic Chemistry 3
CHEM 345 (3) Molecular Properties and Structure 1
CHEM 355 (3) Molecular Properties and Structure 2
CHEM 365 (2) Statistical Thermodynamics
CHEM 367 (3) Instrumental Analysis 1
CHEM 377 (3) Instrumental Analysis 2
CHEM 381 (3) Inorganic Chemistry 2
CHEM 392 (3) Integrated Inorganic/Organic Laboratory
CHEM 393 (2) Physical Chemistry Laboratory 2
CHEM 419 (3) Advances in Chemistry of Atmosphere
CHEM 462 (3) Green Chemistry
MATH 222** (3) Calculus 3
MATH 315 (3) Ordinary Differential Equations

Complementary Courses (15 credits)

6 credits of research*:
* Students may take up to 12 Research Project credits but only 6 of these may be used to fulfill the program requirement.

CHEM 470 (6) Research Project 1
CHEM 480 (3) Research Project 2
CHEM 490D1 (1.5) Research Project 3
CHEM 490D2 (1.5) Research Project 3

3 credits, one of:
ATOC 214 (3) Introduction: Physics of the Atmosphere
CHEM 307 (3) Analytical Chemistry of Pollutants
CHEM 352 (3) Structural Organic Chemistry
MATH 317 (3) Numerical Analysis

6 credits, two of:
ATOC 315 (3) Thermodynamics and Convection
ATOC 412 (3) Atmospheric Dynamics
CHEM 567 (3) Chemometrics: Data Analysis
CHEM 575 (3) Chemical Kinetics
### Program Prerequisites

**PRE-PROGRAM REQUIREMENTS:**

Students entering from the Freshman program must have included CHEM 110 and CHEM 120 or CHEM 115, BIOL 111 or BIOL 112, MATH 133, MATH 140/MATH 141 or MATH 150/MATH 151, PHYS 131/PHYS 142, or their equivalents in their Freshman year. Quebec students must have completed the DEC with appropriate science and mathematics courses. Note that students who have successfully completed MATH 150 and MATH 151 do not have to take MATH 222.

### Required Courses (65 credits)

The required courses in this program consist of 65 credits in chemistry, physics and mathematics, listed below. The courses marked with an asterisk (*) are omitted from the program of students who have successfully completed them at the CEGEP level but the Chemistry courses must be replaced by courses in that discipline if students wish to be eligible for admission to the Ordre des chimistes du Québec. Students from outside Quebec or transfer students should consult the Academic Adviser.


A computer science course, either COMP 202 or COMP 208, is strongly recommended during U1 for students who have no previous introduction to computer programming. Students should contact their adviser on this matter. Completion of Mathematics MATH 222 and MATH 315 during U1 is also strongly recommended. Physics PHYS 242 should be completed during U2.

* Denotes courses with CEGEP equivalents.

** Students who have successfully completed MATH 150 and MATH 151 are not required to take MATH 222.

*** Students may take up to 12 Research Project credits but only 6 of these may be used to fulfil the program requirement.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 212*</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
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<tr>
<td>CHEM 222*</td>
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<td>Introductory Organic Chemistry 2</td>
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<td>CHEM 243</td>
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<td>CHEM 263</td>
<td>1</td>
<td>Introductory Physical Chemistry 2 Laboratory</td>
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<tr>
<td>CHEM 281</td>
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<td>Inorganic Chemistry 1</td>
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<td>CHEM 297</td>
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<td>CHEM 302</td>
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<td>Introductory Organic Chemistry 3</td>
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<td>Molecular Properties and Structure 1</td>
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<td>CHEM 355</td>
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<td>Molecular Properties and Structure 2</td>
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<td>CHEM 365</td>
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<td>CHEM 377</td>
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<td>CHEM 381</td>
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<td>Integrated Inorganic/Organic Laboratory</td>
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<td>CHEM 393</td>
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<td>Physical Chemistry Laboratory 2</td>
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<tr>
<td>CHEM 470***</td>
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<tr>
<td>CHEM 574</td>
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<td>Introductory Polymer Chemistry</td>
</tr>
<tr>
<td>MATH 222**</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
</tbody>
</table>
MATH 315 (3) Ordinary Differential Equations
PHYS 242 (2) Electricity and Magnetism

**Complementary Courses (9 credits)**

9 credits, three of:

* Students take either ANAT 542 or MIME 542.

ANAT 542* (3) Transmission Electron Microscopy
CHEM 462 (3) Green Chemistry
CHEM 531 (3) Chemistry of Inorganic Materials
CHEM 533 (3) Small Molecule Crystallography
CHEM 534 (3) Nanoscience and Nanotechnology
CHEM 543 (3) Chemistry of Pulp and Paper
CHEM 571 (3) Polymer Synthesis
CHEM 582 (3) Supramolecular Chemistry
CHEM 585 (3) Colloid Chemistry
MIME 260 (3) Materials Science and Engineering
MIME 542* (3) Transmission Electron Microscopy

12.14.7.18 Chemistry (CHEM) Related Programs
12.14.8.1 Joint Honours in Physics and Chemistry

For more information, see section 12.14.29: Physics (PHYS).

12.14.8 Cognitive Science

12.14.8.1 About Cognitive Science

Cognitive Science is the multidisciplinary study of cognition in humans and machines. The goal is to understand the principles of intelligence and thought with the hope that this will lead to a better understanding of the mind and of learning, and to the development of intelligent devices that constructively extend human abilities.

Students wishing to enrol in the Minor Cognitive Science must meet with the Interdisciplinary Programs Adviser.

12.14.8.2 Bachelor of Science (B.Sc.) - Minor Cognitive Science (24 credits)

The Minor Cognitive Science is intended to allow students in the Faculty of Arts or the Faculty of Science to explore the interdisciplinary study of cognition. The goal is to understand the principles of intelligence with the hope that this will lead to a better understanding of the mind and learning.

Students wishing to complete this Minor must meet with the Interdisciplinary Programs Adviser in the Science Office for Undergraduate Student Advising (SOUA).

**Required Course (3 credits)**

PSYC 532 (3) Cognitive Science

**Complementary Courses (21 credits)**

Note:

Students must take a minimum of 6 credits at the 400 to 500 level.

Students may not take any courses from their home department(s).

Students complete a minimum of 9 credits each in two areas.

**Computer Science and Mathematics**

COMP 206 (3) Introduction to Software Systems
<table>
<thead>
<tr>
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<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
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<td>Logic and Computability</td>
</tr>
<tr>
<td>COMP 250</td>
<td>3</td>
<td>Introduction to Computer Science</td>
</tr>
<tr>
<td>COMP 251</td>
<td>3</td>
<td>Data Structures and Algorithms</td>
</tr>
<tr>
<td>COMP 302</td>
<td>3</td>
<td>Programming Languages and Paradigms</td>
</tr>
<tr>
<td>COMP 330</td>
<td>3</td>
<td>Theoretical Aspects: Computer Science</td>
</tr>
<tr>
<td>COMP 417</td>
<td>3</td>
<td>Introduction Robotics and Intelligent Systems</td>
</tr>
<tr>
<td>COMP 424</td>
<td>3</td>
<td>Artificial Intelligence</td>
</tr>
<tr>
<td>COMP 527</td>
<td>3</td>
<td>Logic and Computation</td>
</tr>
<tr>
<td>COMP 531</td>
<td>3</td>
<td>Theory of Computation</td>
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<tr>
<td>MATH 318</td>
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**Linguistics**

<table>
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<td>LING 330</td>
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<td>Phonetics</td>
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<td>LING 331</td>
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<td>Phonology 1</td>
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<td>LING 355</td>
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<td>Language Acquisition 1</td>
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<td>LING 360</td>
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<td>Introduction to Semantics</td>
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<td>LING 371</td>
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<td>Syntax 1</td>
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<td>Linguistic Theory and its Foundations</td>
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<td>LING 440</td>
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<td>Second Language Syntax</td>
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<td>LING 571</td>
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<td>Syntax 2</td>
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<td>LING 590</td>
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**Philosophy**

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<td>PHIL 304</td>
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<td>PHIL 306</td>
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<td>PHIL 310</td>
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<td>PHIL 415</td>
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<td>Philosophy of Language</td>
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<td>PHIL 474</td>
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<td>Phenomenology</td>
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<td>PHIL 506</td>
<td>3</td>
<td>Seminar: Philosophy of Mind</td>
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<td>PHIL 511</td>
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<td>Seminar: Philosophy of Logic and Mathematics</td>
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**Psychology**

<table>
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<td>PSYC 301</td>
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<td>Animal Learning &amp; Theory</td>
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<tr>
<td>PSYC 304</td>
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<td>PSYC 310</td>
<td>3</td>
<td>Intelligence</td>
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<td>PSYC 311</td>
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<td>Human Cognition and the Brain</td>
</tr>
<tr>
<td>PSYC 315</td>
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<td>Computational Psychology</td>
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</table>
Computer Science (COMP)

12.14.9.1 Location
McConnell Engineering Building, Room 318
3480 University Street
Montreal, Quebec H3A 2A7
Telephone: 514-398-7071
Fax: 514-398-3883

Undergraduate Student Affairs Office
Lorne Trottier Building, Room 2060
3630 University Street
Montreal, Quebec H3A 2B2
Telephone: 514-398-7071 ext. 00739
Fax: 514-398-4653

Email: ugrad-sec@cs.mcgill.ca
Website: www.cs.mcgill.ca

12.14.9.2 About Computer Science

Computer Science covers the theory and practice behind the design and implementation of computer and information systems. Fundamental to computer science are questions about how to describe, process, manage, and analyze information and computation. A fundamental building block is the study of algorithms. An algorithm presents a detailed sequence of actions solving a particular task. A computer program is the implementation of an algorithm in a specific programming language so that a computer can execute the algorithm. Software generally refers to a computer program or a set of related computer programs.

Based on the building blocks of algorithms and programs, computer science is split into many different areas such as the study of algorithms and data structures, programming languages and methodology, theory of computation, software engineering (the design of large software systems), computer architecture (the structure of the hardware), communication between computers, operating systems (the software that shields users from the underlying hardware), database systems (software that handles large amounts of data efficiently), artificial intelligence (algorithms that imitate human information processing), computer vision (algorithms that let computers see and recognize their environment), computer graphics, robotics (algorithms that control robots), and computational biology (algorithms and methods that address problems inspired by biology). Computer science also plays an important role in many other fields, including Biology, Physics, Engineering, Business, Music, and Neuroscience, where it is necessary to process and reason about large amounts of data. Computer Science is strongly related to mathematics, linguistics, and engineering.

A degree in Computer Science offers excellent job prospects. As the use of computers and specialized software plays a crucial role in business, science, and our personal life, computer graduates are in high demand. Computer scientists find jobs in software development in many areas of computer science, in consulting, and in project management. As computer scientists often develop the software for a specific application domain (e.g., business, engineering, medicine), they must be prepared and willing to get to know their application area.

The School of Computer Science offers a wide range of programs. Most programs start with the same set of basic courses allowing students to decide on their exact program once they get a basic understanding of the discipline. Within the Faculty of Science, there are a major, an honours, a liberal and a minor program in Computer Science, a major and a liberal program in Software Engineering, a major in Computer Science: Computer Games Option, a minor in Computational Biology, a joint major and a joint honours program in Mathematics and Computer Science (see section 12.14.21: Mathematics and Statistics (MATH)), a joint major in Physics and Computer Science (see section 12.14.29: Physics (PHYS)), and a joint major in Computer Science and Biology (see section 12.14.5: Biology (BIOL)). The School also offers a major concentration and minor concentrations in Computer Science through the Faculty of Arts (see Faculty of Arts > Computer Science (COMP)) or as part of a Bachelor of Arts and Science (see Bachelor of Arts and Science > Computer Science).

The School's courses are available as electives to Engineering students. Engineering students interested in a minor in Computer Science should consult Faculty of Engineering > Computer Science Courses and Minor Program.

Most course instructors are Faculty members of the School that do research in the areas they teach. Students will learn in a small classroom environment, get to know their professors and have opportunity to do cutting-edge research. Some graduate courses in Computer Science are available to suitable qualified senior undergraduates. The School offers their students large computing labs in the Lorne Trottier Building that is dedicated to undergraduate students.

All students planning to enter Computer Science programs should make an appointment with an academic adviser through the School's Undergraduate Student Affairs Office.
12.14.9.3 Internship Opportunities

Students who want to get practical experience in industry before graduation are encouraged to participate in one of the following internship programs:

The Internship Year in Science (IYS) is an academic program offered for a duration of 8, 12, or 16 months. It will be reflected on your transcript and is included in your program name (Bachelor of Science - Internship Program).

The Industrial Practicum (IP) has a duration of 4 months and is usually carried out starting in May. It will appear as a 0-credit, Pass/Fail course on your transcript. If you complete two IPs, the name of your program will change to include the word internship.

For more information on these programs, consult section 12.13.1: Industrial Practicum (IP) and Internship Year in Science (IYS), or, www.mcgill.ca/science/internships-field/internships.

12.14.9.4 Research Opportunities

Computer science undergraduates have excellent opportunities to participate in research. Each summer, several awards are available, such as the NSERC Undergraduate Student Research Awards; these offer financial support for a research experience in an academic setting. As well, students may take undergraduate research project courses such as COMP 396 Undergraduate Research Project, COMP 400 Technical Project and Report (for honours students), and COMP 401 Project in Biology and Computer Science. Students who have participated in substantial and broad undergraduate research may qualify for the Dean's Multidisciplinary Undergraduate Research List at graduation time. For more information, consult University Regulations and Information > Graduation Honours: Faculty of Science Dean’s Multidisciplinary Undergraduate Research List.

12.14.9.5 Admissions

Students intending to pursue a major in Computer Science or Software Engineering should have a reasonable mathematical background and should have completed MATH 140 (or MATH 150), MATH 141 (or MATH 151) and MATH 133, or their CEGEP equivalents. These three mathematics courses should have been completed with at least an average of B-. A background in computer science is not necessary as students may start their studies with the introductory course COMP 202. However, taking COMP 202 in the Freshman year, or completing an equivalent course in CEGEP, would be an asset and allows students to take more advanced courses earlier in their program.

More information about the admission process and the programs is available at www.cs.mcgill.ca.

12.14.9.6 Computer Science (COMP) Faculty

**Director**

Gregory Dudek

**Emeritus Professors**

Renato De Mori-Bajolin

Timothy Merrett; B.Sc.(Qu.), D.Phil.(Oxf.)

Monroe Newborn; B.E.E.(R.P.I.), Ph.D.(Ohio St.), F.A.C.M.

Christopher C. Paige

Gerald Ratzer; B.Sc.(Glas.), M.Sc.(McG.)

Godfried T. Toussaint ; B.Sc.(Tulsa), Ph.D.(Br. Col.)

Sue Whitesides; M.S.E.E.(Stan.), Ph.D.(Wisc.)

**Professors**

David M. Avis; B.Sc.(Wat.), Ph.D.(Stan.)

Luc P. Devroye; M.S.(Louvain), Ph.D.(Texas) (James McGill Professor)

Gregory Dudek; B.Sc.(Qu.), M.Sc., Ph.D.(Tor.) (James McGill Professor)

Laurie Hendren; B.Sc., M.Sc.(Qu.), Ph.D.(C’nell)

Prakash Panangaden; M.Sc.(IIT, Kanpur), M.S.(Chic.), Ph.D.(Wisc.)

Bruce Reed; B.Sc., Ph.D.(McG.) (Canada Research Chair) (Royal Society of Canada Fellow)

Kaleem Siddiqi; B.Sc.(Lafayette), M.Sc., Ph.D.(Brown) (William Dawson Scholar)

Denis Thérien; B.Sc.(Montr.), M.Sc., Ph.D.(Wat.) (James McGill Professor)
**Associate Professors**

Mathieu Blanchette; B.Sc., M.Sc.(Montr.), Ph.D.(Wash.)
Xiao-Wen Chang; B.Sc., M.Sc.(Nanjing), Ph.D.(McG.)
Claude Crépeau; B.Sc., M.Sc.(Montr.), Ph.D.(MIT)
Nathan Friedman; B.A.(W. Ont.), Ph.D.(Tor.)
Michael Trevor Hallett; B.Sc.(Qu.), Ph.D.(Vic., BC)
Patrick Hayden; B.Sc.(McG.), Ph.D.(Oxf.) (Canada Research Chair)
Bettina Kemme; B.Sc., M.Sc.(Erlangen-Nuremberg, Germany), Ph.D.(ETH, Zurich)
Jörg Kienzle; Eng.Dip., Ph.D.(Swiss Fed. IT)
Michael Langer; B.Sc.(McG.), M.Sc.(Tor.), Ph.D.(McG.)
Xue Liu; B.Sc., M.Sc.(Tsinghua), Ph.D.(Ill.)
Muthucumaru Maheswaran; B.Sc.(Peradeniya), M.Sc., Ph.D.(Purd.)
Brigitte Pientka; B.Sc., M.Sc.(Darmstadt), Ph.D.(Carn. Mell)
Joëlle Pineau; B.Sc.(Wat.), M.Sc., Ph.D.(Carn. Mell)
Doina Precup; B.Sc.(Cluj-Napoca), M.Sc., Ph.D.(Mass.)
Martin Robillard; B.Eng.(École Poly., Montr.), M.Sc., Ph.D.(Br. Col.)
Carl Tropper; B.Sc.(McG.), Ph.D.(Brooklyn Poly.)
Hans Vangheluwe; B.Sc., M.Sc., D.Sc.(Ghent, Belgium)
Clark Verbrugge; B.A.(Qu.), Ph.D.(McG.)
Adrian Vetta; B.Sc., M.Sc.(LSE), Ph.D.(MIT)

**Assistant Professors**

Hamed Hatami; B.Sc.(Sharif Univ. of Technology), M.Sc., Ph.D.(Tor.)
Paul Kry; B.Sc.(Wat.), M.Sc., Ph.D.(Br. Col.)
Derek Ruths; B.Sc., M.Sc., Ph.D.(Rice)
Mohit Singh; B.Tech.(Indian IT), Ph.D.(Carn. Mell)
Jérôme Waldispühl; B.Sc.(Nice and Sophia-Antipolis, France), M.Sc.(Paris VII), Ph.D.(École Poly., France)

**Faculty Lecturer**

Joseph Vybihal; B.Sc., M.Sc.(McG.)

**Associate Members**

Daniel J. Levitin (*Psychology*)
Dirk Schlimm (*Philosophy*)
Raja Sengupta (*Geography*)
F. Bruce Shepherd (*Mathematics*)
Thomas Richard Shultz (*Psychology*)
Renée Sieber (*Geography*)

**Adjunct Professors**

Masoumeh Tabaei Izadi; B.Sc.(Tehran), M.Sc.(King's Coll., Lond.), Ph.D.(McG.)
Ted Perkins; B.A.(Car.), M.Sc.(Wisc.), Ph.D.(Mass.)
Ioannis Rekleitis; B.Sc.(Athens), M.Sc., Ph.D.(McG.)
Ger Otto Sabidussi
Adjunct Professors

Pascal Tesson

12.14.9.7 Bachelor of Science (B.Sc.) - Minor Computer Science (24 credits)

This Minor is designed for students who want to gain a basic understanding of computer science principles and get an overview of some computer science areas. Basic computer science skills are important in many domains. Thus, the Minor is useful for students majoring in any discipline. It can be taken in conjunction with any program in the Faculties of Science and Engineering (with the exception of other programs in Computer Science).

Students must obtain approval from the adviser of their main program. Students are strongly encouraged to talk to an adviser of the School of Computer Science before choosing the complementary courses. Approval must be given by the School for the particular selection of courses to be credited towards the Minor. This should be done before registering for the final term of studies.

Students may receive credit towards their Computer Science Minor by taking certain approved courses outside the School of Computer Science. These courses must have a high computer science content. A student will not be permitted to receive more than 6 credits from such courses. These courses must be approved by the School of Computer Science in advance. If a student's Major program requires Computer Science courses, up to 6 credits of Computer Science courses may be used to fulfill both Major and Minor requirements.

Required Courses (9 credits)

* Students who have sufficient knowledge in a programming language do not need to take COMP 202, but it must be replaced with an additional computer science complementary course.

** Students may take either COMP 203 or COMP 250, but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 202*</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>COMP 203**</td>
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<td>Introduction to Computing 2</td>
</tr>
<tr>
<td>COMP 206</td>
<td>3</td>
<td>Introduction to Software Systems</td>
</tr>
<tr>
<td>COMP 250**</td>
<td>3</td>
<td>Introduction to Computer Science</td>
</tr>
</tbody>
</table>

Complementary Courses (15 credits)

15 credits selected from the courses below and computer science courses at the 300 level or above (except COMP 364, COMP 396, COMP 400, COMP 431).

* Note: COMP 251 is a prerequisite for many of the other complementary courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 251*</td>
<td>3</td>
<td>Data Structures and Algorithms</td>
</tr>
<tr>
<td>COMP 273</td>
<td>3</td>
<td>Introduction to Computer Systems</td>
</tr>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 240</td>
<td>3</td>
<td>Discrete Structures 1</td>
</tr>
</tbody>
</table>

12.14.9.8 Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Computer Science (45 credits)

This program provides an introduction to the principles of computer science and offers opportunity to get insight into some of its sub-areas. Having only 45 credits, it allows students to combine it with minor or major concentrations in other disciplines.

Required Courses (21 credits)

* Students who have sufficient knowledge in a programming language do not need to take COMP 202, but it must be replaced with an additional computer science complementary course.

<table>
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</tr>
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<tbody>
<tr>
<td>COMP 202*</td>
<td>3</td>
<td>Introduction to Computing 1</td>
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<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 240</td>
<td>3</td>
<td>Discrete Structures 1</td>
</tr>
</tbody>
</table>
Complementary Courses (24 credits)

3-6 credits from:

- MATH 223 (3) Linear Algebra
- MATH 318 (3) Mathematical Logic
- MATH 323 (3) Probability
- MATH 324 (3) Statistics
- MATH 340 (3) Discrete Structures 2

At least 3 credits from:

- COMP 330 (3) Theoretical Aspects: Computer Science
- COMP 350 (3) Numerical Computing
- COMP 360 (3) Algorithm Design Techniques

At least 3 credits from:

- COMP 302 (3) Programming Languages and Paradigms
- COMP 303 (3) Software Development

The remaining complementary courses should be selected from any COMP courses at the 300 level or above except COMP 364, COMP 396, COMP 400 and COMP 431.

Note: Advanced COMP courses have more prerequisites than the required courses for this program. Students have to make sure that they have the appropriate prerequisites when choosing upper-level courses.

12.14.9.9 Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Software Engineering (49 credits)

This program covers a core of programming and software engineering courses and allows students to select courses that aim at practical aspects of software development.

Students may complete this program with a minimum of 48 credits or a maximum of 49 credits depending on their choice of complementary courses.

Required Courses (36 credits)

* Students who have sufficient knowledge in a programming language do not need to take COMP 202 and can replace it with additional computer science complementary course credits.

- COMP 202* (3) Introduction to Computing 1
- COMP 206 (3) Introduction to Software Systems
- COMP 250 (3) Introduction to Computer Science
- COMP 251 (3) Data Structures and Algorithms
- COMP 273 (3) Introduction to Computer Systems
- COMP 302 (3) Programming Languages and Paradigms
- COMP 303 (3) Software Development
- COMP 310 (3) Operating Systems
- COMP 361D1 (3) Software Engineering Project
- COMP 361D2 (3) Software Engineering Project
- MATH 223 (3) Linear Algebra
- MATH 240 (3) Discrete Structures 1
Complementary Courses (13 credits)

3 credits selected from:

- COMP 330 (3) Theoretical Aspects: Computer Science
- COMP 360 (3) Algorithm Design Techniques

9-10 credits selected from the courses below:

* Students take either COMP 435 or COMP 535, but not both.

- COMP 322 (1) Introduction to C++
- COMP 409 (3) Concurrent Programming
- COMP 421 (3) Database Systems
- COMP 435* (3) Basics of Computer Networks
- COMP 520 (4) Compiler Design
- COMP 525 (3) Formal Verification
- COMP 529 (4) Software Architecture
- COMP 533 (3) Object-Oriented Software Development
- COMP 535* (3) Computer Networks 1

Or any computer science course at the 300 level or above, excluding COMP 364, COMP 396, and COMP 431.

12.14.9.10 Bachelor of Science (B.Sc.) - Major Computer Science (63 credits)

This program is the standard Major program offered by the School of Computer Science. It provides a broad introduction to the principles of computer science and offers ample opportunity to acquire in-depth knowledge of several sub-disciplines. At the same time, its credit requirements allow students to take an additional minor.

Students may complete this program with a maximum of 63 credits or a minimum of 60 credits if they are exempt from taking COMP 202.

Required Courses (30 credits)

* Students who have sufficient knowledge in a programming language do not need to take COMP 202.

- COMP 202* (3) Introduction to Computing 1
- COMP 206 (3) Introduction to Software Systems
- COMP 250 (3) Introduction to Computer Science
- COMP 251 (3) Data Structures and Algorithms
- COMP 273 (3) Introduction to Computer Systems
- COMP 302 (3) Programming Languages and Paradigms
- COMP 310 (3) Operating Systems
- MATH 222 (3) Calculus 3
- MATH 223 (3) Linear Algebra
- MATH 240 (3) Discrete Structures 1

Complementary Courses (33 credits)

Students should talk to an academic adviser before choosing their complementary courses.

At least 6 credits selected from:

- COMP 330 (3) Theoretical Aspects: Computer Science
COMP 350  (3)  Numerical Computing
COMP 360  (3)  Algorithm Design Techniques

At least 3 credits selected from:
COMP 303  (3)  Software Development
COMP 304  (3)  Object-Oriented Design

3-9 credits selected from:
* Must include at least one of MATH 323 and MATH 340.
MATH 318  (3)  Mathematical Logic
MATH 323*  (3)  Probability
MATH 324  (3)  Statistics
MATH 340*  (3)  Discrete Structures 2

The remaining credits selected from computer science courses at the 300 level or above (except COMP 364, COMP 396, COMP 400, COMP 431) and ECSE 508.

Note: Students have to make sure that they have the appropriate prerequisites when choosing upper-level courses.

12.14.9.11 Bachelor of Science (B.Sc.) - Major Computer Science and Biology (73 credits)

This program will train students in the fundamentals of biology - with a focus on molecular biology - and will give them computational and mathematical skills needed to manage, analyze, and model large biological datasets. Two integrative features of the program are a three-credit joint independent studies course, and a one-credit seminar.

Students may complete this program with a maximum of 73 credits or a minimum of 69 credits. This depends upon the student's choice of required courses and whether or not the student is exempt from taking COMP 202.

Advising notes for U0 students:
It is highly recommended that Freshman BIOL, CHEM, MATH, and PHYS courses be selected with an adviser to ensure they meet the core requirements of the COMP-BIO program.

Required Courses (49 credits)

Required Mathematics and Statistics Courses
6 credits from the following:
MATH 222  (3)  Calculus 3
MATH 223  (3)  Linear Algebra

Required Computer Science Courses
12-16 credits from:
* Students who have sufficient knowledge in a programming language are not required to take COMP 202.
** Students take either COMP 462 or COMP 561.
COMP 202*  (3)  Introduction to Computing 1
COMP 206  (3)  Introduction to Software Systems
COMP 250  (3)  Introduction to Computer Science
COMP 251  (3)  Data Structures and Algorithms
COMP 462**  (3)  Computational Biology Methods
COMP 561**  (4)  Computational Biology Methods and Research

FACULTY OF SCIENCE
Required Biology Courses
20 credits from:

- BIOL 200 (3) Molecular Biology
- BIOL 201 (3) Cell Biology and Metabolism
- BIOL 202 (3) Basic Genetics
- BIOL 215 (3) Introduction to Ecology and Evolution
- BIOL 301 (4) Cell and Molecular Laboratory
- CHEM 212 (4) Introductory Organic Chemistry 1

Required Joint Courses
4 credits from:

- COMP 401 (3) Project in Biology and Computer Science
- COMP 499 (1) Undergraduate Bioinformatics Seminar

Complementary Courses (27 credits)

6 credits, ONE of the following pairs of courses as follows:

- MATH 203 and MATH 204 or MATH 323 and MATH 324 or BIOL 309 and BIOL 373.

- BIOL 309 (3) Mathematical Models in Biology
- BIOL 373 (3) Biometry
- MATH 203 (3) Principles of Statistics 1
- MATH 204 (3) Principles of Statistics 2
- MATH 323 (3) Probability
- MATH 324 (3) Statistics

At least 21 credits selected from the following blocks, with the following requirements:
- at least 9 credits from each of the following two blocks
- at least 9 credits at the 400 level or above
- at least 3 credits at the 400 level or above from each block

Computer Science Block
Note: All COMP courses at the 400 level (except 401, 462, and 499) and all courses at the 500 level (except 561).

- COMP 273 (3) Introduction to Computer Systems
- COMP 302 (3) Programming Languages and Paradigms
- COMP 303 (3) Software Development
- COMP 304 (3) Object-Oriented Design
- COMP 310 (3) Operating Systems
- COMP 330 (3) Theoretical Aspects: Computer Science
- COMP 335 (3) Software Engineering Methods
- COMP 350 (3) Numerical Computing
- COMP 360 (3) Algorithm Design Techniques
- MATH 240 (3) Discrete Structures 1
**Biology Block**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL 300</td>
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<td>Molecular Biology of the Gene</td>
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<tr>
<td>BIOL 309</td>
<td>3</td>
<td>Mathematical Models in Biology</td>
</tr>
<tr>
<td>BIOL 310</td>
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<td>Biodiversity and Ecosystems</td>
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<td>BIOL 313</td>
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<td>Eukaryotic Cell Biology</td>
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<td>BIOL 395</td>
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<td>Quantitative Biology Seminar 1</td>
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<td>BIOL 435</td>
<td>3</td>
<td>Natural Selection</td>
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<tr>
<td>BIOL 495</td>
<td>1</td>
<td>Quantitative Biology Seminar 2</td>
</tr>
<tr>
<td>BIOL 518</td>
<td>3</td>
<td>Advanced Topics in Cell Biology</td>
</tr>
<tr>
<td>BIOL 551</td>
<td>3</td>
<td>Molecular Biology: Cell Cycle</td>
</tr>
<tr>
<td>BIOL 568</td>
<td>3</td>
<td>Topics on the Human Genome</td>
</tr>
<tr>
<td>BIOL 569</td>
<td>3</td>
<td>Developmental Evolution</td>
</tr>
<tr>
<td>BIOL 572</td>
<td>3</td>
<td>Molecular Evolution</td>
</tr>
<tr>
<td>BIOL 583</td>
<td>3</td>
<td>Advanced Biometry</td>
</tr>
</tbody>
</table>

**12.14.9.12 Bachelor of Science (B.Sc.) - Major Computer Science - Computer Games (67 credits)**

This program is a specialization within Computer Science. It fulfills all the basic requirements of the Major Computer Science. Complementary courses focus on topics that are important to understanding the technology behind computer games and to gaining experience in software development and design needed for computer game development.

Students may complete this program with a minimum of 62 credits or a maximum of 67 credits depending if they are exempt from taking COMP 202 and their choice of complementary courses.

**Required Courses (50 credits)**

* Students who have sufficient knowledge in a programming language do not need to take COMP 202 and can replace it with additional computer science complementary course credits.

<table>
<thead>
<tr>
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</tr>
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<tbody>
<tr>
<td>COMP 202*</td>
<td>3</td>
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<tr>
<td>COMP 206</td>
<td>3</td>
<td>Introduction to Software Systems</td>
</tr>
<tr>
<td>COMP 250</td>
<td>3</td>
<td>Introduction to Computer Science</td>
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<tr>
<td>COMP 251</td>
<td>3</td>
<td>Data Structures and Algorithms</td>
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<td>COMP 273</td>
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<td>Introduction to Computer Systems</td>
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<tr>
<td>COMP 302</td>
<td>3</td>
<td>Programming Languages and Paradigms</td>
</tr>
<tr>
<td>COMP 303</td>
<td>3</td>
<td>Software Development</td>
</tr>
<tr>
<td>COMP 308</td>
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<td>Computer Systems Lab</td>
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<tr>
<td>COMP 310</td>
<td>3</td>
<td>Operating Systems</td>
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<tr>
<td>COMP 322</td>
<td>1</td>
<td>Introduction to C++</td>
</tr>
<tr>
<td>COMP 330</td>
<td>3</td>
<td>Theoretical Aspects: Computer Science</td>
</tr>
<tr>
<td>COMP 361D1</td>
<td>3</td>
<td>Software Engineering Project</td>
</tr>
<tr>
<td>COMP 361D2</td>
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<td>Software Engineering Project</td>
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<tr>
<td>COMP 557</td>
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<td>Fundamentals of Computer Graphics</td>
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<td>MATH 222</td>
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<tr>
<td>MATH 223</td>
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<td>Linear Algebra</td>
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<td>MATH 240</td>
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<tr>
<td>MATH 323</td>
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<td>Probability</td>
</tr>
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</table>
Complementary Courses (17 credits)
Students complete a minimum of 15 or a maximum of 17 complementary credits selected as follows:

3 credits selected from:
- COMP 350 (3) Numerical Computing
- COMP 360 (3) Algorithm Design Techniques

6-8 credits selected from:
- COMP 424 (3) Artificial Intelligence
- COMP 507 (3) Computational Geometry
- COMP 521 (4) Modern Computer Games
- COMP 522 (4) Modelling and Simulation
- COMP 529 (4) Software Architecture
- COMP 533 (3) Object-Oriented Software Development
- COMP 559 (4) Fundamentals of Computer Animation

6 credits selected from:
* Students take either COMP 435 or COMP 535, but not both.
- COMP 409 (3) Concurrent Programming
- COMP 421 (3) Database Systems
- COMP 435* (3) Basics of Computer Networks
- COMP 535* (3) Computer Networks 1

12.14.9.13 Bachelor of Science (B.Sc.) - Major Software Engineering (63 credits)
This program provides a broad introduction to the principles of computer science and covers in depth the design and development of software systems. Students may complete this program with a maximum of 63 credits or a minimum of 60 credits if they are exempt from taking COMP 202.

Required Courses (39 credits)
* Students who have sufficient knowledge in a programming language do not need to take COMP 202.
** Students may select either COMP 310 or ECSE 427, but not both.
- COMP 202* (3) Introduction to Computing 1
- COMP 206 (3) Introduction to Software Systems
- COMP 250 (3) Introduction to Computer Science
- COMP 251 (3) Data Structures and Algorithms
- COMP 273 (3) Introduction to Computer Systems
- COMP 302 (3) Programming Languages and Paradigms
- COMP 303 (3) Software Development
- COMP 310** (3) Operating Systems
- COMP 361D1 (3) Software Engineering Project
- COMP 361D2 (3) Software Engineering Project
- ECSE 427** (3) Operating Systems
- ECSE 429 (3) Software Validation
MATH 223  (3)  Linear Algebra
MATH 240  (3)  Discrete Structures 1

Complementary Courses (24 credits)
At least 9 credits selected from groups A and B, with at least 3 credits selected from each:

Group A:
MATH 222  (3)  Calculus 3
MATH 323  (3)  Probability
MATH 324  (3)  Statistics

Group B:
COMP 330  (3)  Theoretical Aspects: Computer Science
COMP 360  (3)  Algorithm Design Techniques

At least 15 credits selected from the following, with at least 6 credits selected from Software Engineering Specializations, and at least 6 credits selected from Applications Specialties.

Software Engineering Specializations
* Students may select either COMP 409 or ECSE 420, but not both.
COMP 409*  (3)  Concurrent Programming
COMP 523  (3)  Language-based Security
COMP 525  (3)  Formal Verification
COMP 529  (4)  Software Architecture
COMP 533  (3)  Object-Oriented Software Development
ECSE 420*  (3)  Parallel Computing

Application Specialties
* Students may select either COMP 557 or ECSE 532, but not both.
COMP 350  (3)  Numerical Computing
COMP 417  (3)  Introduction Robotics and Intelligent Systems
COMP 421  (3)  Database Systems
COMP 424  (3)  Artificial Intelligence
COMP 512  (4)  Distributed Systems
COMP 520  (4)  Compiler Design
COMP 521  (4)  Modern Computer Games
COMP 522  (4)  Modelling and Simulation
COMP 535  (3)  Computer Networks 1
COMP 557*  (3)  Fundamentals of Computer Graphics
COMP 558  (3)  Fundamentals of Computer Vision
ECSE 424  (3)  Human-Computer Interaction
ECSE 532*  (3)  Computer Graphics
Students may complete this program with a maximum of 75 credits or a minimum of 72 credits if they are exempt from taking COMP 202. Honours students must maintain a CGPA of at least 3.00 during their studies and at graduation.

**Required Courses (45 credits)**
* Students who have sufficient knowledge in a programming language do not need to take COMP 202.
** Students take either MATH 340 or MATH 350.

- COMP 202* (3) Introduction to Computing 1
- COMP 206 (3) Introduction to Software Systems
- COMP 250 (3) Introduction to Computer Science
- COMP 252 (3) Algorithms and Data Structures
- COMP 273 (3) Introduction to Computer Systems
- COMP 302 (3) Programming Languages and Paradigms
- COMP 310 (3) Operating Systems
- COMP 330 (3) Theoretical Aspects: Computer Science
- COMP 350 (3) Numerical Computing
- COMP 362 (3) Honours Algorithm Design
- COMP 400 (3) Technical Project and Report
- MATH 222 (3) Calculus 3
- MATH 223 (3) Linear Algebra
- MATH 240 (3) Discrete Structures 1
- MATH 340** (3) Discrete Structures 2
- MATH 350** (3) Graph Theory and Combinatorics

**Complementary Courses (30 credits)**

At least 3 credits selected from:
- COMP 303 (3) Software Development
- COMP 304 (3) Object-Oriented Design

6 credits selected from:
- MATH 318 (3) Mathematical Logic
- MATH 323 (3) Probability
- MATH 324 (3) Statistics

The remaining credits selected from computer science courses at the 300 level or above (except COMP 364, COMP 396, COMP 400, COMP 431) and ECSE 508. At least 12 credits must be at the 500 level.

**12.14.9.15 Bachelor of Science (B.Sc.) - Honours Software Engineering (75 credits)**

This program provides a more challenging and research-oriented version of the Major Software Engineering program.

Students may complete this program with a maximum of 75 credits or a minimum of 72 credits if they are exempt from taking COMP 202. Honours students must maintain a CGPA of at least 3.00 during their studies and at graduation.

**Required Courses (42 credits)**
* Students who have sufficient knowledge in a programming language do not need to take COMP 202.

** Students may select either COMP 310 or ECSE 427, but not both.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 202*</td>
<td>(3)</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>COMP 206</td>
<td>(3)</td>
<td>Introduction to Software Systems</td>
</tr>
<tr>
<td>COMP 250</td>
<td>(3)</td>
<td>Introduction to Computer Science</td>
</tr>
<tr>
<td>COMP 251</td>
<td>(3)</td>
<td>Data Structures and Algorithms</td>
</tr>
<tr>
<td>COMP 273</td>
<td>(3)</td>
<td>Introduction to Computer Systems</td>
</tr>
<tr>
<td>COMP 302</td>
<td>(3)</td>
<td>Programming Languages and Paradigms</td>
</tr>
<tr>
<td>COMP 303</td>
<td>(3)</td>
<td>Software Development</td>
</tr>
<tr>
<td>COMP 310**</td>
<td>(3)</td>
<td>Operating Systems</td>
</tr>
<tr>
<td>COMP 361D1</td>
<td>(3)</td>
<td>Software Engineering Project</td>
</tr>
<tr>
<td>COMP 361D2</td>
<td>(3)</td>
<td>Software Engineering Project</td>
</tr>
<tr>
<td>COMP 400</td>
<td>(3)</td>
<td>Technical Project and Report</td>
</tr>
<tr>
<td>ECSE 427**</td>
<td>(3)</td>
<td>Operating Systems</td>
</tr>
<tr>
<td>ECSE 429</td>
<td>(3)</td>
<td>Software Validation</td>
</tr>
<tr>
<td>MATH 223</td>
<td>(3)</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 240</td>
<td>(3)</td>
<td>Discrete Structures 1</td>
</tr>
</tbody>
</table>

**Complementary Courses (33 credits)**

Of the 33 credits, at least 12 credits must be at the 500 level or above. Courses at the 600 level require special permission. Information on the policy and procedures for such permission may be found at: http://www.mcgill.ca/science/sousa/general/course/600-level_courses/.

At least 9 credits selected from groups A and B, with at least 3 credits selected from each:

**Group A:**

* Students who have successfully completed MATH 150 and MATH 151 are not required to take MATH 222.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 222*</td>
<td>(3)</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 323</td>
<td>(3)</td>
<td>Probability</td>
</tr>
<tr>
<td>MATH 324</td>
<td>(3)</td>
<td>Statistics</td>
</tr>
</tbody>
</table>

**Group B:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 330</td>
<td>(3)</td>
<td>Theoretical Aspects: Computer Science</td>
</tr>
<tr>
<td>COMP 360</td>
<td>(3)</td>
<td>Algorithm Design Techniques</td>
</tr>
</tbody>
</table>

At least 18 credits selected from the following, with at least 6 credits selected from Software Engineering Specializations, and at least 9 credits selected from Applications Specialties.

**Software Engineering Specializations**

* Students may select either COMP 409 or ECSE 420, but not both.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 409*</td>
<td>(3)</td>
<td>Concurrent Programming</td>
</tr>
<tr>
<td>COMP 523</td>
<td>(3)</td>
<td>Language-based Security</td>
</tr>
<tr>
<td>COMP 525</td>
<td>(3)</td>
<td>Formal Verification</td>
</tr>
<tr>
<td>COMP 529</td>
<td>(4)</td>
<td>Software Architecture</td>
</tr>
<tr>
<td>COMP 533</td>
<td>(3)</td>
<td>Object-Oriented Software Development</td>
</tr>
<tr>
<td>ECSE 420*</td>
<td>(3)</td>
<td>Parallel Computing</td>
</tr>
</tbody>
</table>
Application Specialties

COMP 350 (3) Numerical Computing
COMP 417 (3) Introduction Robotics and Intelligent Systems
COMP 421 (3) Database Systems
COMP 424 (3) Artificial Intelligence
COMP 512 (4) Distributed Systems
COMP 520 (4) Compiler Design
COMP 521 (4) Modern Computer Games
COMP 522 (4) Modelling and Simulation
COMP 535 (3) Computer Networks 1
COMP 557 (3) Fundamentals of Computer Graphics
COMP 558 (3) Fundamentals of Computer Vision
ECSE 424 (3) Human-Computer Interaction

At least 6 credits selected from any COMP courses at the 500 level or above. These may include courses on the Software Engineering Specializations and Application Specialties lists.

12.14.9.16 Computer Science (COMP) Related Programs
12.14.9.16.1 Joint Major in Mathematics and Computer Science
For more information, see section 12.14.21: Mathematics and Statistics (MATH).

12.14.9.16.2 Joint Honours in Mathematics and Computer Science
For more information, see section 12.14.21: Mathematics and Statistics (MATH). Students must consult an Honours adviser in both departments.

12.14.9.16.3 Joint Major in Statistics and Computer Science
For more information, see section 12.14.21: Mathematics and Statistics (MATH).

12.14.9.16.4 Joint Honours in Statistics and Computer Science
For more information, see section 12.14.21: Mathematics and Statistics (MATH). Students must consult an Honours adviser in both departments.

12.14.9.16.5 Joint Major in Physics and Computer Science
For more information, see section 12.14.29: Physics (PHYS).

12.14.9.16.6 Minor in Cognitive Science
Students following Major or Honours programs in Computer Science may want to consider the Minor in Cognitive Science.


12.14.10.1 Location
Frank Dawson Adams Building, Room 238
3450 University Street
Montreal, Quebec H3A 2A7

Telephone: 514-398-6767
Fax: 514-398-4680
Email: kristy.thornton@mcgill.ca
Website: www.eps.mcgill.ca

12.14.10.2 About Earth and Planetary Sciences
The domain of Earth and Planetary Sciences includes the solid Earth and its hydrosphere and extends to the neighbouring terrestrial planets. It is a multidisciplinary field in which the principles of chemistry, physics, and mathematics are applied to the rich problems of the real world in order to understand how planets like the Earth work; in the past, the present, and the future.
Career opportunities are many and varied for graduates in the Earth and Planetary Sciences. There is presently a demand for graduates with expertise in many disciplines of the Earth Sciences. Our students are recruited for employment in the petroleum and mining industries, and in the environmental sector. During the summer months, undergraduate students are generally able to obtain employment from industry or government agencies, providing them with both financial benefits and first-hand geoscientific experience. Career opportunities in planetary science are present in universities and research organizations.

The Department has a full-time staff of 17 professors and one faculty lecturer. There are approximately 55 graduate and 50 undergraduate students. Classes are therefore small at all levels, resulting in an informal and friendly atmosphere throughout the Department in which most of the faculty and students interact on a first-name basis. Emphasis is placed equally on quality teaching and research providing undergraduate students with a rich and exciting environment in which to explore and learn.

The undergraduate curriculum is designed to provide both a rigorous foundation in the physical sciences and the flexibility to create an individualized program in preparation for careers in industry, teaching, or research. In addition to the Major and Honours undergraduate programs, the Department is part of the Earth System Science Interdepartmental program, and also offers a Joint Major in Physics and Geophysics which provides a rigorous mathematics and physics preparation and a geological background in the geosciences.

The Minor in Geology offers students from other departments the opportunity to obtain exposure to the Earth Sciences, while the Minor in Geochemistry is oriented towards Chemistry Major students who want to see the application of chemistry to problems in Earth and Planetary Sciences.

A Science Major concentration in Earth, Atmosphere and Ocean Sciences is available to students pursuing the B.A. & Sc. degree. This Major concentration is described in the Bachelor of Arts and Science section of this publication; see Bachelor of Arts and Science > Earth, Atmosphere and Ocean Sciences for details.

Students interested in any of the programs should inquire at Room 238, Frank Dawson Adams Building, 514-398-6767, or should consult the Undergraduate Director:

Professor Jeanne Paquette
Frank Dawson Adams Building, Room 214
Email: jeanne.paquette@mcgill.ca
Telephone: 514-398-4402

12.14.10.3 Earth and Planetary Sciences (EPSC) Faculty

Chair
Andrew Hynes

Emeritus Professors
Jafar Arkani-Hamed; B.Eng.(Tehran), Ph.D.(MIT)
Wallace H. MacLean; B.Geol.Eng.(Colorado Sch. of Mines), M.Sc.(Appl.), Ph.D.(McG.)
Robert F. Martin; B.Sc.(Ott.), M.S.(Penn. St.), Ph.D.(Stan.)
Colin W. Stearn; B.Sc.(McM.), M.S., Ph.D.(Yale), F.R.S.C.

Professors
Don R. Baker; A.B.(Chic.), Ph.D.(Penn. St.)
Don M. Francis; B.Sc.(McG.), M.Sc.(Br. Col.), Ph.D.(MIT) (Dawson Professor of Geology)
Andrew J. Hynes; B.Sc.(Tor.), Ph.D.(Cant.) (William E. Logan Professor of Geology)
Olivia G. Jensen; B.Sc., M.Sc., Ph.D.(Br. Col.)
Alfonso Mucci; B.Sc., M.Sc.(Montr.), Ph.D.(Miami)
John Stix; A.B.(Dart.), M.Sc., Ph.D.(Tor.)
A.E. (Willy) Williams-Jones; B.Sc., M.Sc.(Natal), Ph.D.(Qu.)

Associate Professors
Galen Halverson; B.A.(Mont.), M.A.(Harv.), Ph.D.(Harv.) (T.H. Clark Chair in Sedimentary and Petroleum Geology)
Jeanne Paquette; B.Sc., M.Sc.(McG.), Ph.D.(Stonybrook) (Undergraduate Director)
Hojatollah Vali; B.Sc., M.Sc., Ph.D.(Munich) (Director, Electron Microscopy Centre)

Assistant Professors
Eric Galbraith; B.Sc.(McG.), Ph.D.(Br. Col.)
### Assistant Professors

Sarah Hall; B.A. (Hamilton), Ph.D. (Calif.-Santa Cruz)
Yajing Liu; B.Sc. (Peking), Ph.D. (Harv.)
Jeffrey McKenzie; B.Sc. (McG.), M.Sc., Ph.D. (Syrac.)
Christie Rowe; A.B. (Smith), Ph.D. (Calif.-Santa Cruz)
Vincent van Hinsberg; Propadeuse (Utrecht), Doctorandus (Utrecht), Ph.D. (Brist.)
Boswell Wing; A.B. (Harv.), M.A., Ph.D. (Johns Hop.) (Canada Research Chair in Earth Systems Science (Geochemistry))

### Faculty Lecturer

W. Minarik; B.A. (St. Olaf), M.Sc. (Wash.), Ph.D. (Rensselaer)

### Adjunct Professors

M. Duchesne
M. Riedel
H. Short
B. Sundby

### Retired Professor

R. Hesse

**12.14.10.4 Bachelor of Science (B.Sc.) - Minor Geology (18 credits)**

The Minor Geology offers students from other departments the opportunity to obtain exposure to the Earth Sciences.

#### Required Courses (6 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSC 210</td>
<td>(3)</td>
<td>Introductory Mineralogy</td>
</tr>
<tr>
<td>EPSC 212</td>
<td>(3)</td>
<td>Introductory Petrology</td>
</tr>
</tbody>
</table>

#### Complementary Courses (12 credits)

3 credits, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSC 201</td>
<td>(3)</td>
<td>Understanding Planet Earth</td>
</tr>
<tr>
<td>EPSC 233</td>
<td>(3)</td>
<td>Earth and Life History</td>
</tr>
</tbody>
</table>

9 credits selected from the list below and other 300-level and higher courses in Earth and Planetary Sciences may be substituted with permission.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSC 203</td>
<td>(3)</td>
<td>Structural Geology</td>
</tr>
<tr>
<td>EPSC 231</td>
<td>(3)</td>
<td>Field School 1</td>
</tr>
<tr>
<td>EPSC 334</td>
<td>(3)</td>
<td>Invertebrate Paleontology</td>
</tr>
<tr>
<td>EPSC 350</td>
<td>(3)</td>
<td>Tectonics</td>
</tr>
<tr>
<td>EPSC 451</td>
<td>(3)</td>
<td>Hydrothermal Mineral Deposits</td>
</tr>
<tr>
<td>EPSC 452</td>
<td>(3)</td>
<td>Mineral Deposits</td>
</tr>
<tr>
<td>EPSC 542</td>
<td>(3)</td>
<td>Chemical Oceanography</td>
</tr>
<tr>
<td>EPSC 561</td>
<td>(3)</td>
<td>Ore-forming Processes 1</td>
</tr>
</tbody>
</table>
12.14.10.5 Bachelor of Science (B.Sc.) - Minor Geochemistry (18 credits)

Required Courses (9 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSC 201</td>
<td>3</td>
<td>Understanding Planet Earth</td>
</tr>
<tr>
<td>EPSC 210</td>
<td>3</td>
<td>Introductory Mineralogy</td>
</tr>
<tr>
<td>EPSC 212</td>
<td>3</td>
<td>Introductory Petrology</td>
</tr>
</tbody>
</table>

Complementary Courses (9 credits)

9 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSC 220</td>
<td>3</td>
<td>Principles of Geochemistry</td>
</tr>
<tr>
<td>EPSC 501</td>
<td>3</td>
<td>Crystal Chemistry</td>
</tr>
<tr>
<td>EPSC 519</td>
<td>3</td>
<td>Isotope Geology</td>
</tr>
<tr>
<td>EPSC 542</td>
<td>3</td>
<td>Chemical Oceanography</td>
</tr>
<tr>
<td>EPSC 545</td>
<td>3</td>
<td>Low-Temperature Geochemistry</td>
</tr>
<tr>
<td>EPSC 561</td>
<td>3</td>
<td>Ore-forming Processes 1</td>
</tr>
<tr>
<td>EPSC 570</td>
<td>3</td>
<td>Cosmochemistry</td>
</tr>
<tr>
<td>EPSC 590</td>
<td>3</td>
<td>Applied Geochemistry Seminar</td>
</tr>
</tbody>
</table>

12.14.10.6 Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Earth and Planetary Sciences (45 credits)

The B.Sc. (Liberal) program in Earth and Planetary Sciences provides the graduate with a solid core of knowledge of Geology, Geophysics, Earth Systems Science, and Planetary Science while allowing for a broadening of the student's educational experience with courses from the other sciences or the arts. The program is flexible, allowing students to assemble a truly interdisciplinary degree.

Required Courses (21 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSC 203</td>
<td>3</td>
<td>Structural Geology</td>
</tr>
<tr>
<td>EPSC 210</td>
<td>3</td>
<td>Introductory Mineralogy</td>
</tr>
<tr>
<td>EPSC 212</td>
<td>3</td>
<td>Introductory Petrology</td>
</tr>
<tr>
<td>EPSC 220</td>
<td>3</td>
<td>Principles of Geochemistry</td>
</tr>
<tr>
<td>EPSC 231</td>
<td>3</td>
<td>Field School 1</td>
</tr>
<tr>
<td>EPSC 233</td>
<td>3</td>
<td>Earth and Life History</td>
</tr>
<tr>
<td>EPSC 320</td>
<td>3</td>
<td>Elementary Earth Physics</td>
</tr>
</tbody>
</table>

Complementary Courses (24 credits)

3 credits, one of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSC 331</td>
<td>3</td>
<td>Field School 2</td>
</tr>
<tr>
<td>EPSC 341</td>
<td>3</td>
<td>Field School 3</td>
</tr>
</tbody>
</table>

plus 21 credits chosen from the following:

Note: Courses at the 300 or higher level in other departments in the Faculties of Science and Engineering may also be used as complementary credits, with the permission of the Director of undergraduate studies.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPSC 312</td>
<td>3</td>
<td>Spectroscopy of Minerals</td>
</tr>
<tr>
<td>EPSC 330</td>
<td>3</td>
<td>Earthquakes and Earth Structure</td>
</tr>
<tr>
<td>EPSC 334</td>
<td>3</td>
<td>Invertebrate Paleontology</td>
</tr>
</tbody>
</table>
The program curriculum is designed to provide a rigorous foundation in physical sciences and the flexibility to create an individualized program in preparation for careers in industry, teaching, and research. The program is accepted for professional qualification in most Canadian provinces.

U1 Required Courses (21 credits)

EPSC 203 (3) Structural Geology
EPSC 210 (3) Introductory Mineralogy
EPSC 212 (3) Introductory Petrology
EPSC 220 (3) Principles of Geochemistry
EPSC 231 (3) Field School 1
EPSC 312 (3) Spectroscopy of Minerals
MATH 222 (3) Calculus 3
3 credits, one of:

EPSC 201 (3) Understanding Planet Earth
EPSC 233 (3) Earth and Life History

**U2 and/or U3 Required Courses (24 credits)**

EPSC 320 (3) Elementary Earth Physics
EPSC 334 (3) Invertebrate Paleontology
EPSC 340 (3) Earth and Planetary Inference
EPSC 350 (3) Tectonics
EPSC 423 (3) Igneous Petrology
EPSC 445 (3) Metamorphic Petrology
EPSC 452 (3) Mineral Deposits
EPSC 455 (3) Sedimentary Geology

**Complementary Courses (18 credits)**

3 credits, one of:

EPSC 331 (3) Field School 2
EPSC 341 (3) Field School 3

plus 15 credits (five courses) chosen from the following:

Note: Other courses at the 300 level or higher in Earth and Planetary Sciences and in other departments in the Faculties of Science and Engineering may also be used as complementary credits with the permission of the Director of undergraduate studies.

EPSC 330 (3) Earthquakes and Earth Structure
EPSC 425 (3) Sediments to Sequences
EPSC 435 (3) Applied Geophysics
EPSC 451 (3) Hydrothermal Mineral Deposits
EPSC 470D1 (3) Undergraduate Thesis Research
EPSC 470D2 (3) Undergraduate Thesis Research
EPSC 501 (3) Crystal Chemistry
EPSC 519 (3) Isotope Geology
EPSC 530 (3) Volcanology
EPSC 542 (3) Chemical Oceanography
EPSC 547 (3) Modelling Geochemical Processes
EPSC 548 (3) Processes of Igneous Petrology
EPSC 549 (3) Hydrogeology
EPSC 550 (3) Selected Topics 1
EPSC 551 (3) Selected Topics 2
EPSC 552 (3) Selected Topics 3
EPSC 561 (3) Ore-forming Processes 1
EPSC 562 (3) Ore-forming Processes 2
EPSC 570 (3) Cosmochemistry
Bachelor of Science (B.Sc.) - Honours Earth Sciences (75 credits)

The program curriculum is designed to provide a rigorous foundation in physical sciences and the flexibility to create an individualized program in preparation for careers in industry, teaching, and research. It is intended to provide an excellent preparation for graduate work in the earth sciences. The program is accepted for professional qualification in most Canadian provinces.

Note: Honours students must maintain a CGPA equal to or greater than 3.20.

U1 Required Courses (24 credits)

- EPSC 203 (3) Structural Geology
- EPSC 210 (3) Introductory Mineralogy
- EPSC 212 (3) Introductory Petrology
- EPSC 220 (3) Principles of Geochemistry
- EPSC 231 (3) Field School 1
- EPSC 233 (3) Earth and Life History
- EPSC 312 (3) Spectroscopy of Minerals
- MATH 222 (3) Calculus 3

U2 and/or U3 Required Courses (33 credits)

- EPSC 320 (3) Elementary Earth Physics
- EPSC 340 (3) Earth and Planetary Inference
- EPSC 350 (3) Tectonics
- EPSC 423 (3) Igneous Petrology
- EPSC 445 (3) Metamorphic Petrology
- EPSC 452 (3) Mineral Deposits
- EPSC 455 (3) Sedimentary Geology
- EPSC 480D1 (3) Honours Research Project
- EPSC 480D2 (3) Honours Research Project
- MATH 314 (3) Advanced Calculus
- MATH 315 (3) Ordinary Differential Equations

Complementary Courses (18 credits)

- 3 credits, one of:
  - EPSC 331 (3) Field School 2
  - EPSC 341 (3) Field School 3

- plus 15 credits (five courses) chosen from the following:

  Note: Courses at the 300 level or higher in other departments in the Faculties of Science and Engineering may also be used as complementary credits, with the permission of the Director of undergraduate studies.

  - EPSC 330 (3) Earthquakes and Earth Structure
  - EPSC 334 (3) Invertebrate Paleontology
  - EPSC 425 (3) Sediments to Sequences
12.14.10.9 Bachelor of Science (B.Sc.) - Honours Planetary Sciences (81 credits)

The program curriculum is designed to provide a rigorous foundation in physical sciences and the flexibility to create an individualized program in preparation for careers in industry, teaching, and research. It is intended to provide an excellent preparation for graduate work in the earth and planetary sciences.

Note: Honours students must maintain a CGPA equal to or greater than 3.20.

**U1 Required Courses (27 credits)**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td>EPSC 203</td>
<td>Structural Geology</td>
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<tr>
<td>EPSC 210</td>
<td>Introductory Mineralogy</td>
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<td>EPSC 212</td>
<td>Introductory Petrology</td>
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<td>EPSC 220</td>
<td>Principles of Geochemistry</td>
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<td>EPSC 231</td>
<td>Field School 1</td>
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<tr>
<td>EPSC 233</td>
<td>Earth and Life History</td>
<td>3</td>
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<tr>
<td>EPSC 312</td>
<td>Spectroscopy of Minerals</td>
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<td>MATH 222</td>
<td>Calculus 3</td>
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<td>MATH 223</td>
<td>Linear Algebra</td>
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**U2 and/or U3 Required Courses (42 credits)**

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<td>EPSC 320</td>
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<td>EPSC 330</td>
<td>Earthquakes and Earth Structure</td>
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<tr>
<td>EPSC 340</td>
<td>Earth and Planetary Inference</td>
<td>3</td>
</tr>
<tr>
<td>EPSC 350</td>
<td>Tectonics</td>
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<td>EPSC 423</td>
<td>Igneous Petrology</td>
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<tr>
<td>EPSC 480D1</td>
<td>Honours Research Project</td>
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</table>
Honours Research Project (3) EPSC 480D2
Geodynamics and Geomagnetism (3) EPSC 510
Cosmochemistry (3) EPSC 570
Advanced Calculus (3) MATH 314
Ordinary Differential Equations (3) MATH 315
Numerical Analysis (3) MATH 317
Introduction to Partial Differential Equations (3) MATH 319
Majors Electricity and Magnetism (3) PHYS 340

Complementary Courses (12 credits)

3 credits, one of:
PHYS 230 (3) Dynamics of Simple Systems
PHYS 251 (3) Honours Classical Mechanics 1

plus 9 credits (three courses) chosen from the following:

Note: Courses at the 300 level or higher in other departments in the Faculties of Science and Engineering may also be used as complementary credits, with the permission of the Director of undergraduate studies.

Invertebrate Paleontology (3) EPSC 334
Sediments to Sequences (3) EPSC 425
Applied Geophysics (3) EPSC 435
Hydrothermal Mineral Deposits (3) EPSC 451
Crystal Chemistry (3) EPSC 501
Isotope Geology (3) EPSC 519
Subsurface Mapping (3) EPSC 525
Volcanology (3) EPSC 530
Chemical Oceanography (3) EPSC 542
Modelling Geochemical Processes (3) EPSC 547
Processes of Igneous Petrology (3) EPSC 548
Hydrogeology (3) EPSC 549
Selected Topics 1 (3) EPSC 550
Selected Topics 2 (3) EPSC 551
Selected Topics 3 (3) EPSC 552
Ore-forming Processes 1 (3) EPSC 561
Ore-forming Processes 2 (3) EPSC 562
Aqueous Geochemistry (3) EPSC 580
Applied Geochemistry Seminar (3) EPSC 590

1214.10.10 Earth and Planetary Sciences (EPSC) Related Programs

1214.10.01 Joint Major in Physics and Geophysics

For more information, see section 12.14.29: Physics (PHYS).

1214.10.02 Earth System Science Interdepartmental Major

This program is offered by the Department of Atmospheric & Oceanic Sciences, Earth & Planetary Sciences, and Geography. Students in the Department of Earth & Planetary Sciences who are interested in this program should contact: Professor Jeffrey McKenzie (jeffrey.mckenzie@mcgill.ca).
For more information, see section 12.14.11: Earth System Science Interdepartmental Major (ESYS).

12.14.11 Earth System Science Interdepartmental Major (ESYS)

12.14.11.1 Location

Program Adviser
Professor Jeffrey McKenzie
Frank Dawson Adams, Room 131C
Email: jeffrey.mckenzie@mcgill.ca
Telephone: 514-398-3833

12.14.11.2 About Earth System Science Interdepartmental Major

The McGill program in Earth System Science (ESYS) is designed to equip students with the skills and knowledge to address six “Grand Challenges” that are fundamental to our understanding of the way in which the Earth operates. These are:

- Global biogeochemical cycles
- Climate variability and change
- Land use and land cover change
- Energy and resources
- Earth hazards: volcanoes, earthquakes, and hurricanes
- Earth-atmosphere observation, analysis, and prediction

The ESS Major is offered jointly by the Department of Atmospheric and Oceanic Sciences (ATOC), the Department of Earth and Planetary Sciences (EPSC), and the Department of Geography (GEOG).

The individual departments, their disciplines, and specific courses offered by them are described in their respective entries in this publication.

12.14.11.3 Bachelor of Science (B.Sc.) - Major Earth System Science (57 credits)

The Major in Earth System Science (ESYS) is offered jointly by the following departments:

- Atmospheric and Oceanic Sciences (ATOC)
- Earth and Planetary Sciences (EPSC)
- Geography (GEOG)

Earth System Science (ESYS) views Earth as a single integrated system that provides a unifying context to examine the interrelationships between all components of the Earth system. The approach concentrates on the nature of linkages among the biological, chemical, human, and physical subsystems of the Earth. Earth System Science primarily involves studying the cycling of matter and energy through the atmosphere, biosphere, cryosphere, exosphere, and hydrosphere. It examines the dynamics and interrelationships among these processes at time scales that range from billions of years to days, and seeks to understand how these interrelationships have changed over time.

Required Courses (36 credits)

- ATOC 214 (3) Introduction: Physics of the Atmosphere
- BIOL 215 (3) Introduction to Ecology and Evolution
- ENVR 200 (3) The Global Environment
- ENVR 201 (3) Society, Environment and Sustainability
- ESYS 200 (3) Earth System Processes
- ESYS 300 (3) Investigating the Earth System
- ESYS 301 (3) Earth System Modelling
- ESYS 500 (3) Earth System Applications
- GEOG 203 (3) Environmental Systems
- GEOG 308 (3) Principles of Remote Sensing
- MATH 203 (3) Principles of Statistics 1
- MATH 222 (3) Calculus 3
Complementary Courses (21 credits)

3 credits, one of the following courses:

EPSC 210 (3) Introductory Mineralogy
EPSC 220 (3) Principles of Geochemistry

18 credits from the following course list, with at least 3 credits from each of subject codes ATOC, EPSC, and GEOG. At least 9 of the 18 credits must be at the 400 level or higher.

Note: Courses at the 300 level or higher in other departments in the Faculties of Science and Engineering may also be used as complementary credits, with the permission of an academic adviser. Please see the list posted on the Departmental web page.

ATOC 215 (3) Oceans, Weather and Climate
ATOC 309 (3) Weather Radars and Satellites
ATOC 315 (3) Thermodynamics and Convection
ATOC 412 (3) Atmospheric Dynamics
ATOC 419 (3) Advances in Chemistry of Atmosphere
ATOC 512 (3) Atmospheric and Oceanic Dynamics
ATOC 513 (3) Waves and Stability
ATOC 530 (3) Paleoclimate Dynamics
ATOC 531 (3) Dynamics of Current Climates
ATOC 540 (3) Synoptic Meteorology 1
ATOC 541 (3) Synoptic Meteorology 2
BIOL 308 (3) Ecological Dynamics
BIOL 309 (3) Mathematical Models in Biology
BIOL 432 (3) Limnology
BIOL 434 (3) Theoretical Ecology
BIOL 441 (3) Biological Oceanography
BIOL 465 (3) Conservation Biology
BIOL 540 (3) Ecology of Species Invasions
BREE 319 (3) Engineering Mathematics
ECON 347 (3) Economics of Climate Change
ECON 405 (3) Natural Resource Economics
EPSC 212 (3) Introductory Petrology
EPSC 312 (3) Spectroscopy of Minerals
EPSC 320 (3) Elementary Earth Physics
EPSC 330 (3) Earthquakes and Earth Structure
EPSC 331 (3) Field School 2
EPSC 334 (3) Invertebrate Paleontology
EPSC 341 (3) Field School 3
EPSC 350 (3) Tectonics
EPSC 423 (3) Igneous Petrology
EPSC 425 (3) Sediments to Sequences
EPSC 445 (3) Metamorphic Petrology
EPSC 451 (3) Hydrothermal Mineral Deposits
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<td>Earth’s Changing Surface</td>
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<td>GEOG 305</td>
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<td>Soils and Environment</td>
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<td>Raster Geo-Information Science</td>
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<td>Socioeconomic Applications of GIS</td>
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<td>GEOG 372</td>
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<td>GEOG 506</td>
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<td>GEOG 522</td>
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<td>GEOG 535</td>
<td>3</td>
<td>Remote Sensing and Interpretation</td>
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<td>GEOG 536</td>
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<td>Geocryology</td>
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<td>Advanced Fluvial Geomorphology</td>
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<td>MATH 423</td>
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<tr>
<td>PHYS 432</td>
<td>3</td>
<td>Physics of Fluids</td>
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</tbody>
</table>
12.14.12 Environment

12.14.12.1 Location

Downtown Campus
3534 University Street
Montreal, Quebec H3A 2A7
Telephone: 514-398-2827
Fax: 514-398-1643

Macdonald Campus
Rowles House
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, Quebec H9X 3V9
Telephone: 514-398-7559
Fax: 514-398-7846

12.14.12.2 About Environment

All courses given by the McGill School of Environment (Subject Code ENVR) are considered as courses taught by the Faculty of Science.

Science students who are interested in studying the environment should refer to the McGill School of Environment section where they will find information concerning the Minor program in Environment, the B.Sc. Major program in Environment and the B.Sc. Honours program in Environment.

12.14.13 Experimental Medicine (EXMD)

12.14.13.1 Location

Lady Meredith House, Room 101
1110 Pine Avenue West
Montreal, Quebec H3A 1A3

Telephone: 514-398-3466
Email: experimental.medicine@mcgill.ca
Website: www.medicine.mcgill.ca/expmed

12.14.13.2 About Experimental Medicine

Experimental Medicine is a Division of the Department of Medicine. There are no B.Sc. programs in Experimental Medicine, but the EXMD courses listed below are considered as courses taught by the Faculty of Science.

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<tr>
<td>EXMD 401</td>
<td>Physiology and Biochemistry Endocrine Systems</td>
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<td>EXMD 502</td>
<td>Advanced Endocrinology 01</td>
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<td>EXMD 503</td>
<td>Advanced Endocrinology 02</td>
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<td>EXMD 504</td>
<td>Biology of Cancer</td>
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<td>EXMD 506</td>
<td>Advanced Applied Cardiovascular Physiology</td>
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<td>Advanced Applied Respiratory Physiology</td>
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<td>EXMD 508</td>
<td>Advanced Topics in Respiration</td>
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<td>EXMD 509</td>
<td>Gastrointestinal Physiology and Pathology</td>
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<td>EXMD 510</td>
<td>Bioanalytical Separation Methods</td>
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<td>EXMD 511</td>
<td>Joint Venturing with Industry</td>
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12.14.14 Field Study

For details about the Minor program in Field Study, see Field Studies and Study Abroad > Field Study Minor.
12.14.15 General Science Minor

12.14.15.1 Location

Interdisciplinary Programs Adviser
Ryan Bouma, Interim Adviser
Email: ryan.bouma@mcgill.ca
Telephone: 514-398-7330

12.14.15.2 About General Science

The Minor in General Science is only open to students in a B.Sc. Liberal program. Students interested in completing this Minor must consult with the Adviser for this program. See the program description in section 12.14.15.3: Bachelor of Science (B.Sc.) - Minor General Science (18 credits) for more information.

12.14.15.3 Bachelor of Science (B.Sc.) - Minor General Science (18 credits)

The Minor General Science is restricted to students in the B.Sc. Liberal program and may be used for the breadth component in this option. Students should consult their program adviser for their core science component and the Interdisciplinary Programs Adviser when selecting courses for this Minor.

Complementary Courses (18 credits)

Courses are to be chosen according to the following guidelines:

All courses must be offered by the Faculty of Science and must be at or above the 200 level*.

All courses must be different from the student's core science component courses.

Two options:

9 credits at the 300 level or above and at least 9 credits outside the student's core science component subject.

or

12 credits at the 300 level or above and at least 6 credits outside the student's core science component subject.

* Note: All Undergraduate research project courses with the 396 or 397 course number cannot be used toward the Minor General Science.

12.14.16 Geography (GEOG)

12.14.16.1 Location

Burnside Hall, Room 705
805 Sherbrooke Street West
Montreal, Quebec H3A 2K6

Telephone: 514-398-4951 or 514-398-4111
Fax: 514-398-7437
Website: www.geog.mcgill.ca

12.14.16.2 About Geography

The Department of Geography offers programs in both Arts and Science. All B.A. programs in Geography (including Urban Systems) can be found under Faculty of Arts > Geography (GEOG).

Geography is a broad, holistic discipline: both a natural and a social science because it examines people and their environment and serves as a bridge between physical and cultural processes. Human Geography (a social science, thus B.A. programs) is concerned especially with the political, economic, social, and cultural processes and resource practices that create spatial patterns and define particular places. Physical Geography (B.Sc. programs) integrates disciplines such as climatology, geomorphology, geology, biology, hydrology, ecology, soil science, and even marine science. Whether considering greenhouse gas emissions, the spread of disease, or threats to biodiversity, in all cases geographers are interested in where things happen, why, and with what consequences.

Our graduates go on to careers in environmental consulting, social agencies, or non-governmental organizations. Skills in Geographic Information Science (GIS) are very marketable. Students are well prepared for graduate work in social sciences, urban planning, and environmental studies at leading schools.

12.14.16.3 Prerequisites

There are no departmental prerequisites for entrance to the B.Sc. Geography programs. Students who have completed college or pre-university geography courses fully equivalent to those in the first year of university may, with an adviser's approval, substitute other courses as part of their program.
A Science Major Concentration in Geography - Physical Geography option is available to students pursuing the B.A. & Sc. degree. This Major concentration is described in the Bachelor of Arts and Science section of this publication; see Bachelor of Arts and Science > Geography (GEOG) for details.

12.14.16.4 Geography (GEOG) Faculty

Chair
Michel M.F. Lapointe (until August 2011), T.R. Moore (as of September 2011)

Emeritus Professor
B.J. Garnier; M.A. (Camb.)

Professors
P.G. Brown; B.A. (Haver.), M.A., Ph.D. (Col.) (joint appt. with McGill School of Environment and Natural Resource Sciences)
T.R. Moore; B.Sc. (Swansea), Ph.D. (Aberd.)
N.T. Roulet; B.Sc., M.Sc. (Trent), Ph.D. (McM.) (James McGill Professor)
G.W. Wenzel; M.A. (Manit.), Ph.D. (McG.)

Associate Professors
G.L. Chmura; B.S. (Mass.), M.S. (Rhode Is.), Ph.D. (L.S.U.)
O.T. Coomes; B.Sc. (Vic., BC), M.A. (Tor.), Ph.D. (Wisc.)
B. Forest; A.B. (Chic.), M.A., Ph.D. (Calif.-LA)
M.F. Lapointe; B.Sc., M.Sc. (McG.), Ph.D. (Br. Col.)
T.C. Meredith; B.E.S. (Wat.), M.Sc., Dip. Cons. (Lond.), Ph.D. (Camb.)
W.H. Pollard; B.A., M.Sc. (Guelph), Ph.D. (Ott.)
N.A. Ross; B.A., M.A. (Qu.), Ph.D. (McM.)
R. Sengupta; B.Sc. (Bombay), M.Sc. (IT, Mumbai), M.S., Ph.D. (S. Ill.-Carbondale) (joint appt. with McGill School of Environment)
I.B. Strachan; B.Sc. (Tor.), M.Sc., Ph.D. (Qu.) (cross appt. with Natural Resource Sciences)
S. Turner; B.Soc.Sci., M.Soc.Sc. (Waikato), Ph.D. (Hull)
J. Unruh; B.A. (Kansas), M.S. (Wisc.), Ph.D. (Ariz.) (on leave Winter 2011 and Fall 2011)

Assistant Professors
L. Berrang Ford; B.Sc. (Guelph), M.Sc. (Oxf.), Ph.D. (Guelph)
S. Breau; B.A. (Moncton), M.A. (Laval), Ph.D. (Calif.-LA)
J. Ford; B.A., M.Sc. (Oxf.), Ph.D. (Guelph)
M. Kalácska; B.Sc., M.Sc., Ph.D. (Alta.)
B. Lehner; Dip. Hydrol. (Freiburg), Ph.D. (Frankfurt)
N. Oswin; B.A. Hons. (Tor.), M.A. (Dal.), Ph.D. (Br. Col.)
N. Ramankutty; B.E. (P.S.G. Coll. of Tech.), M.S. (Ill.), Ph.D. (Wisc.)
J. Rhemtulla; B.Sc. (McG.), M.Sc. (Alta.), Ph.D. (Wisc. Madison)

12.14.16.5 Bachelor of Science (B.Sc.) - Minor Geography (18 credits)

The Minor Geography is expandable into the B.Sc. Major Geography.

The Minor Geography is designed to provide students in the Faculty of Science with an overview of basic elements of geography at the introductory and advanced level.

This Minor permits no overlap with any other programs.
Required Courses (12 credits)

GEOG 203  (3) Environmental Systems
GEOG 216  (3) Geography of the World Economy
GEOG 217  (3) Cities in the Modern World
GEOG 302  (3) Environmental Management 1

Complementary Courses (6 credits)

6 credits of Geography courses at the 300 and 400 level.

12.14.16.6 Bachelor of Science (B.Sc.) - Minor Geographic Information Systems (18 credits)

The Minor Geographic Information Systems (GIS) is designed to provide students in the Faculty of Science who have an interest in GIS with a basic, but comprehensive, knowledge of concepts and methods relating to the analysis of geospatial data.

Required Courses (15 credits)

GEOG 201  (3) Introductory Geo-Information Science
GEOG 306  (3) Raster Geo-Information Science
GEOG 307  (3) Socioeconomic Applications of GIS
GEOG 308  (3) Principles of Remote Sensing
GEOG 506  (3) Advanced Geographic Information Science

Complementary Course (3 credits)

One course to be chosen from:

* Note prerequisites.

ATOC 309  (3) Weather Radars and Satellites
COMP 557* (3) Fundamentals of Computer Graphics
GEOG 535  (3) Remote Sensing and Interpretation
GEOG 551  (3) Environmental Decisions
URBP 505  (3) Geographic Information Systems

12.14.16.7 Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Geography (49 credits)

Required Courses (22 credits)

GEOG 201  (3) Introductory Geo-Information Science
GEOG 203  (3) Environmental Systems
GEOG 216  (3) Geography of the World Economy
GEOG 217  (3) Cities in the Modern World
GEOG 272  (3) Earth's Changing Surface
GEOG 290  (1) Local Geographical Excursion
GEOG 302  (3) Environmental Management 1
GEOG 351  (3) Quantitative Methods

Complementary Courses (27 credits)

One course (3 credits) from the following statistics* courses.
* Note: Credit given for statistics courses is subject to certain restrictions. Students in Science should consult the “Course Overlap” information in the “Course Requirements” section for the Faculty of Science.

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<td>GEOG 202</td>
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<td>Statistics and Spatial Analysis</td>
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<td>Principles of Statistics 1</td>
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<td>PSYC 204</td>
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<td>Introduction to Psychological Statistics</td>
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<tr>
<td>SOCI 350</td>
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<td>Statistics in Social Research</td>
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</table>

One course (3 credits) from the following GIS/Remote Sensing courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 306</td>
<td>3</td>
<td>Raster Geo-Information Science</td>
</tr>
<tr>
<td>GEOG 307</td>
<td>3</td>
<td>Socioeconomic Applications of GIS</td>
</tr>
<tr>
<td>GEOG 308</td>
<td>3</td>
<td>Principles of Remote Sensing</td>
</tr>
</tbody>
</table>

Four courses (12 credits) from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 305</td>
<td>3</td>
<td>Soils and Environment</td>
</tr>
<tr>
<td>GEOG 321</td>
<td>3</td>
<td>Climatic Environments</td>
</tr>
<tr>
<td>GEOG 322</td>
<td>3</td>
<td>Environmental Hydrology</td>
</tr>
<tr>
<td>GEOG 372</td>
<td>3</td>
<td>Running Water Environments</td>
</tr>
<tr>
<td>GEOG 470</td>
<td>3</td>
<td>Wetlands</td>
</tr>
</tbody>
</table>

One course (3 credits) from the following field courses:

(Field course availability is determined each year in February.)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 495</td>
<td>3</td>
<td>Field Studies - Physical Geography</td>
</tr>
<tr>
<td>GEOG 496</td>
<td>3</td>
<td>Geographical Excursion</td>
</tr>
<tr>
<td>GEOG 497</td>
<td>3</td>
<td>Ecology of Coastal Waters</td>
</tr>
<tr>
<td>GEOG 499</td>
<td>3</td>
<td>Subarctic Field Studies</td>
</tr>
</tbody>
</table>

Two additional courses (6 credits) from the list of approved Geography courses below, including at least one at the 400 level or above.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 404</td>
<td>3</td>
<td>Environmental Management 2</td>
</tr>
<tr>
<td>GEOG 501</td>
<td>3</td>
<td>Modelling Environmental Systems</td>
</tr>
<tr>
<td>GEOG 505</td>
<td>3</td>
<td>Global Biogeochemistry</td>
</tr>
<tr>
<td>GEOG 506</td>
<td>3</td>
<td>Advanced Geographic Information Science</td>
</tr>
<tr>
<td>GEOG 522</td>
<td>3</td>
<td>Advanced Environmental Hydrology</td>
</tr>
<tr>
<td>GEOG 523</td>
<td>3</td>
<td>Global Ecosystems and Climate</td>
</tr>
<tr>
<td>GEOG 535</td>
<td>3</td>
<td>Remote Sensing and Interpretation</td>
</tr>
<tr>
<td>GEOG 536</td>
<td>3</td>
<td>Geocryology</td>
</tr>
<tr>
<td>GEOG 537</td>
<td>3</td>
<td>Advanced Fluvial Geomorphology</td>
</tr>
<tr>
<td>GEOG 550</td>
<td>3</td>
<td>Historical Ecology Techniques</td>
</tr>
<tr>
<td>GEOG 555</td>
<td>3</td>
<td>Ecological Restoration</td>
</tr>
</tbody>
</table>
**Bachelor of Science (B.Sc.) - Major Geography (58 credits)**

The Major is designed to provide a coverage of the main elements of physical geography.

### Required Courses (22 credits)

- **GEOG 201** (3) Introductory Geo-Information Science
- **GEOG 203** (3) Environmental Systems
- **GEOG 216** (3) Geography of the World Economy
- **GEOG 217** (3) Cities in the Modern World
- **GEOG 272** (3) Earth's Changing Surface
- **GEOG 290** (1) Local Geographical Excursion
- **GEOG 302** (3) Environmental Management 1
- **GEOG 351** (3) Quantitative Methods

### Complementary Courses (36 credits)

#### 3 credits of statistics:

Note: Credit given for statistics courses is subject to certain restrictions. Students in Science should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Science.

- **BIOL 373** (3) Biometry
- **GEOG 202** (3) Statistics and Spatial Analysis
- **MATH 203** (3) Principles of Statistics 1
- **PSYC 204** (3) Introduction to Psychological Statistics
- **SOCI 350** (3) Statistics in Social Research

#### 3 credits of GIS techniques:

- **GEOG 306** (3) Raster Geo-Information Science
- **GEOG 308** (3) Principles of Remote Sensing

#### 12 credits of systematic physical geography:

- **GEOG 305** (3) Soils and Environment
- **GEOG 321** (3) Climatic Environments
- **GEOG 322** (3) Environmental Hydrology
- **GEOG 372** (3) Running Water Environments
- **GEOG 470** (3) Wetlands

#### 3 credits of field courses:

(Field course availability is determined each year in February.)

- **GEOG 495** (3) Field Studies - Physical Geography
- **GEOG 496** (3) Geographical Excursion
- **GEOG 497** (3) Ecology of Coastal Waters
- **GEOG 499** (3) Subarctic Field Studies
15 credits from approved courses in Geography, or elsewhere in the Faculty of Science, or in the Faculty of Engineering; at least 9 credits of which are to be taken outside Geography. Students may also include any courses that are not already counted towards the GIS techniques or the systematic physical geography requirements. Admission to 500-level courses in Geography requires the instructor's permission. It is not advisable to take more than one 500-level course in a term.

Advising Note: See the Geography website for the list of approved courses in the Faculty of Science. Some courses require the permission of the Department and from the Associate Dean of Science, Student Affairs.

**Geography Approved Course List - Major, Honours and Liberal Programs**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 404</td>
<td>3</td>
<td>Environmental Management 2</td>
</tr>
<tr>
<td>GEOG 501</td>
<td>3</td>
<td>Modelling Environmental Systems</td>
</tr>
<tr>
<td>GEOG 505</td>
<td>3</td>
<td>Global Biogeochemistry</td>
</tr>
<tr>
<td>GEOG 506</td>
<td>3</td>
<td>Advanced Geographic Information Science</td>
</tr>
<tr>
<td>GEOG 522</td>
<td>3</td>
<td>Advanced Environmental Hydrology</td>
</tr>
<tr>
<td>GEOG 523</td>
<td>3</td>
<td>Global Ecosystems and Climate</td>
</tr>
<tr>
<td>GEOG 535</td>
<td>3</td>
<td>Remote Sensing and Interpretation</td>
</tr>
<tr>
<td>GEOG 536</td>
<td>3</td>
<td>Geocryology</td>
</tr>
<tr>
<td>GEOG 537</td>
<td>3</td>
<td>Advanced Fluvial Geomorphology</td>
</tr>
<tr>
<td>GEOG 550</td>
<td>3</td>
<td>Historical Ecology Techniques</td>
</tr>
<tr>
<td>GEOG 555</td>
<td>3</td>
<td>Ecological Restoration</td>
</tr>
</tbody>
</table>

**12.14.16.9 Bachelor of Science (B.Sc.) - Honours Geography (66 credits)**

The Honours program is designed to provide specialized systematic training in physical geography. In addition to the Faculty requirement that Honours students maintain a minimum CGPA of at least 3.00, students who enter a Geography Honours program on or after September 2006 must have a program GPA of 3.30.

Honours students are encouraged to participate in 500-level seminars with graduate students, but it is not advisable to take more than one per term.

**Required Courses (24 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 201</td>
<td>3</td>
<td>Introductory Geo-Information Science</td>
</tr>
<tr>
<td>GEOG 203</td>
<td>3</td>
<td>Environmental Systems</td>
</tr>
<tr>
<td>GEOG 272</td>
<td>3</td>
<td>Earth's Changing Surface</td>
</tr>
<tr>
<td>GEOG 302</td>
<td>3</td>
<td>Environmental Management 1</td>
</tr>
<tr>
<td>GEOG 351</td>
<td>3</td>
<td>Quantitative Methods</td>
</tr>
<tr>
<td>GEOG 381</td>
<td>3</td>
<td>Geographic Thought and Practice</td>
</tr>
<tr>
<td>GEOG 491D1</td>
<td>3</td>
<td>Honours Research</td>
</tr>
<tr>
<td>GEOG 491D2</td>
<td>3</td>
<td>Honours Research</td>
</tr>
</tbody>
</table>

**Complementary Courses (42 credits)**

6 credits of introductory courses, two of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 210</td>
<td>3</td>
<td>Global Places and Peoples</td>
</tr>
<tr>
<td>GEOG 216</td>
<td>3</td>
<td>Geography of the World Economy</td>
</tr>
<tr>
<td>GEOG 217</td>
<td>3</td>
<td>Cities in the Modern World</td>
</tr>
</tbody>
</table>

3 credits of statistics*, one of:

* Note: Credit given for statistics courses is subject to certain restrictions. Students in Science should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Science.
### Courses Overview

#### BIOL 373
- Biometry

#### GEOG 202
- Statistics and Spatial Analysis

#### MATH 203
- Principles of Statistics 1

#### PSYC 204
- Introduction to Psychological Statistics

#### SOCI 350
- Statistics in Social Research

#### GIS Techniques

<table>
<thead>
<tr>
<th>Course ID</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 306</td>
<td>Raster Geo-Information Science</td>
<td>(3)</td>
</tr>
<tr>
<td>GEOG 308</td>
<td>Principles of Remote Sensing</td>
<td>(3)</td>
</tr>
</tbody>
</table>

#### Systematic Physical Geography

<table>
<thead>
<tr>
<th>Course ID</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 305</td>
<td>Soils and Environment</td>
<td>(3)</td>
</tr>
<tr>
<td>GEOG 321</td>
<td>Climatic Environments</td>
<td>(3)</td>
</tr>
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<td>GEOG 322</td>
<td>Environmental Hydrology</td>
<td>(3)</td>
</tr>
<tr>
<td>GEOG 372</td>
<td>Running Water Environments</td>
<td>(3)</td>
</tr>
<tr>
<td>GEOG 470</td>
<td>Wetlands</td>
<td>(3)</td>
</tr>
</tbody>
</table>

#### Field Courses

<table>
<thead>
<tr>
<th>Course ID</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 495</td>
<td>Field Studies - Physical Geography</td>
<td>(3)</td>
</tr>
<tr>
<td>GEOG 496</td>
<td>Geographical Excursion</td>
<td>(3)</td>
</tr>
<tr>
<td>GEOG 497</td>
<td>Ecology of Coastal Waters</td>
<td>(3)</td>
</tr>
<tr>
<td>GEOG 499</td>
<td>Subarctic Field Studies</td>
<td>(3)</td>
</tr>
</tbody>
</table>

### Additional Information

- **15 credits from approved courses in Geography, or elsewhere in the Faculty of Science or the Faculty of Engineering; at least 9 credits of which are to be taken outside Geography. Students may also include any courses that are not already counted towards the GIS techniques or the systematic physical geography requirements. Admission to 500-level courses in Geography requires the instructor's permission. It is not advisable to take more than one per term.**

- **Advising Note:** See the Geography website for the list of approved courses in the Faculty of Science. Some courses require the permission of the Department and from the Associate Dean of Science, Student Affairs.

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<th>Title</th>
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<tbody>
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<td>GEOG 404</td>
<td>Environmental Management 2</td>
<td>(3)</td>
</tr>
<tr>
<td>GEOG 501</td>
<td>Modelling Environmental Systems</td>
<td>(3)</td>
</tr>
<tr>
<td>GEOG 505</td>
<td>Global Biogeochemistry</td>
<td>(3)</td>
</tr>
<tr>
<td>GEOG 506</td>
<td>Advanced Geographic Information Science</td>
<td>(3)</td>
</tr>
<tr>
<td>GEOG 522</td>
<td>Advanced Environmental Hydrology</td>
<td>(3)</td>
</tr>
<tr>
<td>GEOG 523</td>
<td>Global Ecosystems and Climate</td>
<td>(3)</td>
</tr>
<tr>
<td>GEOG 535</td>
<td>Remote Sensing and Interpretation</td>
<td>(3)</td>
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<tr>
<td>GEOG 536</td>
<td>Geocryology</td>
<td>(3)</td>
</tr>
<tr>
<td>GEOG 537</td>
<td>Advanced Fluvial Geomorphology</td>
<td>(3)</td>
</tr>
<tr>
<td>GEOG 550</td>
<td>Historical Ecology Techniques</td>
<td>(3)</td>
</tr>
<tr>
<td>GEOG 555</td>
<td>Ecological Restoration</td>
<td>(3)</td>
</tr>
</tbody>
</table>
12.14.10 Geography (GEOG) Related Programs and Study Semesters
12.14.10.1 African Field Study Semester
The Department of Geography, Faculty of Science, coordinates the 15-credit interdisciplinary African Field Study Semester; see www.mcgill.ca/africa.

12.14.10.2 Panama Field Study Semester
The program is a joint venture between McGill University and the Smithsonian Tropical Research Institute (STRI) in Panama. For more information, see www.mcgill.ca/pfss.

12.14.10.3 Earth System Science Interdepartmental Major
For more information, see section 12.14.11: Earth System Science Interdepartmental Major (ESYS).
This program is offered by the Department of Atmospheric & Oceanic Sciences, Earth & Planetary Sciences, and Geography.

Students in the Department of Geography interested in this program should contact: Professor Jeffrey McKenzie (jeffrey.mckenzie@mcgill.ca).

12.14.10.4 Bachelor of Arts and Science (B.A. & Sc.) Interfaculty Program in Sustainability, Science and Society
The Interfaculty Program in Sustainability, Science and Society is open only to students in the B.A. & Sc. degree.

Adviser: Prof. Navin Ramankutty
Email: navin.ramankutty@mcgill.ca
Telephone: 514-398-8428

For further information about this program, see Bachelor of Arts and Science > Bachelor of Arts and Science (B.A. & Sc.) - Interfaculty Program in Sustainability, Science and Society (54 credits).

12.14.17 Immunology Interdepartmental Honours

12.14.17.1 Location
Montreal General Hospital
Room L11.132-44
1650 Cedar Avenue
Montreal, Quebec H3G 1A4

or

McIntyre Medical Sciences Building, Room 1136
3655 Promenade Sir-William-Osler
Montreal, Quebec H3G 1Y6

12.14.17.2 About Immunology Interdepartmental Honours
Three departments offer the Honours program in Immunology: Biochemistry, Microbiology and Immunology, and Physiology, combining elements of each. The program is a demanding one, which will prepare the student for graduate work in immunology.

This program is comprised of a core of 48 credits in basic science courses in cell and molecular biology, microbiology, biochemistry, and physiology. An additional 27 complementary credits may be selected from a broad selection of science courses. The remaining 13 credits are free electives, enabling the student to explore related science disciplines. Finally, an undergraduate research project, seminar, and thesis provides an opportunity to directly experience research work in a laboratory with a professor of immunology.

Students who do not maintain Honours standing must transfer their registration to a program in one of the three participating departments.

Apply to Dr. C. Piccirillo, Microbiology and Immunology, Room L11.132-44, Montreal General Hospital, 1650 Cedar Avenue, Montreal, QC, H3G 1A4; ciro.piccirillo@mcgill.ca; 514-398-2872 or Dr. Monroe Cohen, Physiology, Room 1136, McIntyre Medical Sciences Building, 3655 Promenade Sir-William-Osler, Montreal, QC, H3G 1Y6; monroe.cohen@mcgill.ca; 514-398-4342.

12.14.17.3 Bachelor of Science (B.Sc.) - Honours Immunology (Interdepartmental) (75 credits)
Students must obtain a U1 GPA or a U2 CGPA of 3.30 for admission to this enrolment-limited program. U1 students should inform one of the program coordinators of their intent to enter the Honours Immunology (Interdepartmental) program during their U1 Winter term and confirm their intention in writing by April 1. U2 or U3 students can apply for admission at any time.

For graduation in the Honours program, the student must complete a minimum of 90 credits, and achieve a CGPA of not less than 3.30. The immunology courses (BIOC 503, MIMM 314, MIMM 414, MIMM 509, PHGY 419D1/D2, PHGY 513, PHGY 531) must all be passed with a grade not less than B.

Required Courses (48 credits)
U1 Required Courses
20 credits selected as follows:
* Students select either BIOC 212 or BIOL 201.
** Students select either CHEM 203 or CHEM 204.
*** Students select either PHGY 209 or MIMM 211.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC 212*</td>
<td>3</td>
<td>Molecular Mechanisms of Cell Function</td>
</tr>
<tr>
<td>BIOL 200</td>
<td>3</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 201*</td>
<td>3</td>
<td>Cell Biology and Metabolism</td>
</tr>
<tr>
<td>CHEM 203**</td>
<td>3</td>
<td>Survey of Physical Chemistry</td>
</tr>
<tr>
<td>CHEM 204**</td>
<td>3</td>
<td>Physical Chemistry/Biological Sciences 1</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 222</td>
<td>4</td>
<td>Introductory Organic Chemistry 2</td>
</tr>
<tr>
<td>MIMM 211***</td>
<td>3</td>
<td>Introductory Microbiology</td>
</tr>
<tr>
<td>PHGY 209***</td>
<td>3</td>
<td>Mammalian Physiology 1</td>
</tr>
</tbody>
</table>

U2 Required Courses
13 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 261</td>
<td>4</td>
<td>Introduction to Dynamic Histology</td>
</tr>
<tr>
<td>BIOC 311</td>
<td>3</td>
<td>Metabolic Biochemistry</td>
</tr>
<tr>
<td>BIOC 312</td>
<td>3</td>
<td>Biochemistry of Macromolecules</td>
</tr>
<tr>
<td>MIMM 314</td>
<td>3</td>
<td>Immunology</td>
</tr>
</tbody>
</table>

U3 Required Courses
15 credits from the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIMM 414</td>
<td>3</td>
<td>Advanced Immunology</td>
</tr>
<tr>
<td>PHGY 419D1</td>
<td>4.5</td>
<td>Immunology Research Project</td>
</tr>
<tr>
<td>PHGY 419D2</td>
<td>4.5</td>
<td>Immunology Research Project</td>
</tr>
<tr>
<td>PHGY 513</td>
<td>3</td>
<td>Cellular Immunology</td>
</tr>
</tbody>
</table>

Complementary Courses (27 credits)

U1 Complementary Courses
6 credits chosen for U1 complementary courses in the following manner.

3 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 373</td>
<td>3</td>
<td>Biometry</td>
</tr>
<tr>
<td>MATH 203</td>
<td>3</td>
<td>Principles of Statistics 1</td>
</tr>
<tr>
<td>PSYC 204</td>
<td>3</td>
<td>Introduction to Psychological Statistics</td>
</tr>
</tbody>
</table>

plus 3 credits selected from the following:
* Students take CHEM 287 and CHEM 297.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 214</td>
<td>3</td>
<td>Systemic Human Anatomy</td>
</tr>
<tr>
<td>ANAT 262</td>
<td>3</td>
<td>Introductory Molecular and Cell Biology</td>
</tr>
</tbody>
</table>
BIOL 202  (3) Basic Genetics
BIOL 205  (3) Biology of Organisms
BIOL 304  (3) Evolution
CHEM 287* (2) Introductory Analytical Chemistry
CHEM 297* (1) Introductory Analytical Chemistry Laboratory
COMP 202  (3) Introduction to Computing 1
COMP 203  (3) Introduction to Computing 2
MATH 204  (3) Principles of Statistics 2
MIMM 211  (3) Introductory Microbiology
MIMM 212  (2) Laboratory in Microbiology
PHGY 209  (3) Mammalian Physiology 1
PHGY 210  (3) Mammalian Physiology 2

U2 Complementary Courses
12 credits chosen as follows:
6 credits selected from:

Students may select
* BIOC 300D1 and BIOC D2 or
** MIMM 386D1 and MIMM 386D2 or
*** PHGY 212 and PHGY 213 and BIOL 301

plus 6 credits, selected from:

* Students take either BIOL 309 or MATH 315, but not both.

ANAT 365  (3) Cellular Trafficking
BIOL 300  (3) Molecular Biology of the Gene
BIOL 309* (3) Mathematical Models in Biology
BIOL 314  (3) Molecular Biology of Oncogenes
CHEM 302  (3) Introductory Organic Chemistry 3
MATH 222  (3) Calculus 3
MATH 315* (3) Ordinary Differential Equations
MIMM 323  (3) Microbial Physiology
MIMM 324  (3) Fundamental Virology
PATH 300  (3) Human Disease
PHAR 300  (3) Drug Action
PHAR 301  (3) Drugs and Disease
Principles of Toxicology (3)  PHAR 303
Channels, Synapses & Hormones (3)  PHGY 311
Respiratory, Renal, & Cardiovascular Physiology (3)  PHGY 312
Blood, Gastrointestinal, & Immune Systems Physiology (3)  PHGY 313
Integrative Neuroscience (3)  PHGY 314

**U3 Complementary Courses**

9 credits of U3 complementary courses chosen in the following manner:

3 credits selected from:

BIOC 503    (3)    Immunochemistry
MIMM 509    (3)    Inflammatory Processes
PHGY 531    (3)    Topics in Applied Immunology

plus 6 credits selected from:

* Students take either ANAT 458 or BIOC 458, but not both.

ANAT 458*    (3)    Membranes and Cellular Signaling
BIOC 404    (3)    Biophysical Chemistry
BIOC 450    (3)    Protein Structure and Function
BIOC 454    (3)    Nucleic Acids
BIOC 458*    (3)    Membranes and Cellular Signaling
BIOC 503    (3)    Immunochemistry
BIOL 520    (3)    Gene Activity in Development
MIMM 413    (3)    Parasitology
MIMM 465    (3)    Bacterial Pathogenesis
MIMM 466    (3)    Viral Pathogenesis
MIMM 509    (3)    Inflammatory Processes
PHAR 503    (3)    Drug Design and Development 1
PHAR 504    (3)    Drug Design and Development 2
PHGY 531    (3)    Topics in Applied Immunology
PHGY 552    (3)    Cellular and Molecular Physiology

**12.14.18 Interdisciplinary Life Sciences Minor**

**12.14.18.1 Location**

Interdisciplinary Programs Adviser
Ryan Bouma, Interim Adviser
Email: ryan.bouma@mcgill.ca
Telephone: 514-398-7330

**12.14.18.2 About Interdisciplinary Life Sciences Minor**

The Interdisciplinary Life Sciences Minor allows students to obtain exposure to Life Sciences and life science-related areas. Students must consult with the Adviser to review course selection.
Please note: Students studying in Anatomy and Cell Biology, Biochemistry, Microbiology and Immunology, and Physiology, are not permitted to complete this Minor.

12.14.18.3 Bachelor of Science (B.Sc.) - Minor Interdisciplinary Life Sciences (24 credits)

The Interdisciplinary Life Sciences Minor will allow students from the earth, physical, math, and computational science areas to broaden their studies with some basic life sciences, health social science, and empirical technological science. The Minor is 24 credits and allows students flexibility in their course selections. Students must take 9 credits from an extensive list of basic life science courses, 3 credits from an extensive list of health and social science courses, and 3 credits from an empirical and technological science list. The remaining 9 credits may be taken from courses listed in any of the three categories.

This Minor is not open to students taking a major, honours, or core science component in the following units: Anatomy and Cell Biology, Biochemistry, Microbiology and Immunology, and Physiology.

Interested students should contact the Interdisciplinary Programs Adviser.

Complementary Courses (24 credits)

The 24 credits required for this program must satisfy the following criteria:

- At least 18 credits must be new credits that are not used to satisfy any other program.
- At least 18 credits must be outside the student's main discipline.

Depth requirement:

- at least 6 credits must be at the 300 level or above.

Breadth requirement:

- at least 9 credits must be taken from the Basic Life Sciences List,
- at least 3 credits from the Health Social Sciences List,
- at least 3 credits from the Empirical Science and Technology List.

The remaining 9 credits may be selected from any of the lists.

Basic Life Sciences

At least 9 credits from:

* Students take either ANAT 212 or BIOC 212, but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 212</td>
<td>3</td>
<td>Molecular Mechanisms of Cell Function</td>
</tr>
<tr>
<td>ANAT 214</td>
<td>3</td>
<td>Systemic Human Anatomy</td>
</tr>
<tr>
<td>ANAT 261</td>
<td>4</td>
<td>Introduction to Dynamic Histology</td>
</tr>
<tr>
<td>ANAT 262</td>
<td>3</td>
<td>Introductory Molecular and Cell Biology</td>
</tr>
<tr>
<td>ANAT 321</td>
<td>3</td>
<td>Circuity of the Human Brain</td>
</tr>
<tr>
<td>ANAT 365</td>
<td>3</td>
<td>Cellular Trafficking</td>
</tr>
<tr>
<td>ANAT 381</td>
<td>3</td>
<td>Basis of Embryology</td>
</tr>
<tr>
<td>BIOC 212*</td>
<td>3</td>
<td>Molecular Mechanisms of Cell Function</td>
</tr>
<tr>
<td>BIOC 311</td>
<td>3</td>
<td>Metabolic Biochemistry</td>
</tr>
<tr>
<td>BIOC 450</td>
<td>3</td>
<td>Protein Structure and Function</td>
</tr>
<tr>
<td>BIOC 458</td>
<td>3</td>
<td>Membranes and Cellular Signaling</td>
</tr>
<tr>
<td>BIOL 200</td>
<td>3</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 201</td>
<td>3</td>
<td>Cell Biology and Metabolism</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>3</td>
<td>Basic Genetics</td>
</tr>
<tr>
<td>BIOL 300</td>
<td>3</td>
<td>Molecular Biology of the Gene</td>
</tr>
<tr>
<td>BIOL 301</td>
<td>4</td>
<td>Cell and Molecular Laboratory</td>
</tr>
<tr>
<td>BIOL 303</td>
<td>3</td>
<td>Developmental Biology</td>
</tr>
<tr>
<td>BIOL 306</td>
<td>3</td>
<td>Neural Basis of Behaviour</td>
</tr>
<tr>
<td>BIOL 314</td>
<td>3</td>
<td>Molecular Biology of Oncogenes</td>
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<tr>
<td>BIOL 370</td>
<td>3</td>
<td>Human Genetics Applied</td>
</tr>
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<td>Course Code</td>
<td>Credits</td>
<td>Course Title</td>
</tr>
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<tr>
<td>CHEM 212</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
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<tr>
<td>CHEM 222</td>
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<td>Introductory Organic Chemistry 2</td>
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<tr>
<td>CHEM 302</td>
<td>3</td>
<td>Introductory Organic Chemistry 3</td>
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<tr>
<td>CHEM 502</td>
<td>3</td>
<td>Advanced Bio-Organic Chemistry</td>
</tr>
<tr>
<td>CHEM 503</td>
<td>3</td>
<td>Drug Design and Development 1</td>
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<tr>
<td>CHEM 504</td>
<td>3</td>
<td>Drug Design and Development 2</td>
</tr>
<tr>
<td>EXMD 401</td>
<td>3</td>
<td>Physiology and Biochemistry Endocrine Systems</td>
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<tr>
<td>MIMM 211</td>
<td>3</td>
<td>Introductory Microbiology</td>
</tr>
<tr>
<td>MIMM 314</td>
<td>3</td>
<td>Immunology</td>
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<td>MIMM 323</td>
<td>3</td>
<td>Microbial Physiology</td>
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<td>MIMM 324</td>
<td>3</td>
<td>Fundamental Virology</td>
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<tr>
<td>MIMM 387</td>
<td>3</td>
<td>Applied Microbiology and Immunology</td>
</tr>
<tr>
<td>MIMM 465</td>
<td>3</td>
<td>Bacterial Pathogenesis</td>
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<tr>
<td>MIMM 466</td>
<td>3</td>
<td>Viral Pathogenesis</td>
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<td>NSCI 201</td>
<td>3</td>
<td>Introduction to Neuroscience 2</td>
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<tr>
<td>NUTR 307</td>
<td>3</td>
<td>Human Nutrition</td>
</tr>
<tr>
<td>PATH 300</td>
<td>3</td>
<td>Human Disease</td>
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<td>PHAR 300</td>
<td>3</td>
<td>Drug Action</td>
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<tr>
<td>PHAR 301</td>
<td>3</td>
<td>Drugs and Disease</td>
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<tr>
<td>PHAR 303</td>
<td>3</td>
<td>Principles of Toxicology</td>
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<tr>
<td>PHAR 503</td>
<td>3</td>
<td>Drug Design and Development 1</td>
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<tr>
<td>PHAR 504</td>
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<td>Drug Design and Development 2</td>
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<tr>
<td>PHGY 209</td>
<td>3</td>
<td>Mammalian Physiology 1</td>
</tr>
<tr>
<td>PHGY 210</td>
<td>3</td>
<td>Mammalian Physiology 2</td>
</tr>
<tr>
<td>PHGY 311</td>
<td>3</td>
<td>Channels, Synapses &amp; Hormones</td>
</tr>
<tr>
<td>PHGY 312</td>
<td>3</td>
<td>Respiratory, Renal, &amp; Cardiovascular Physiology</td>
</tr>
<tr>
<td>PHGY 313</td>
<td>3</td>
<td>Blood, Gastrointestinal, &amp; Immune Systems Physiology</td>
</tr>
<tr>
<td>PHGY 314</td>
<td>3</td>
<td>Integrative Neuroscience</td>
</tr>
<tr>
<td>PSYC 211</td>
<td>3</td>
<td>Introductory Behavioural Neuroscience</td>
</tr>
<tr>
<td>PSYC 311</td>
<td>3</td>
<td>Human Cognition and the Brain</td>
</tr>
<tr>
<td>PSYC 317</td>
<td>3</td>
<td>Genes and Behaviour</td>
</tr>
<tr>
<td>PSYC 318</td>
<td>3</td>
<td>Behavioural Neuroscience 2</td>
</tr>
<tr>
<td>PSYC 342</td>
<td>3</td>
<td>Hormones and Behaviour</td>
</tr>
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</table>

**Health Social Science**

At least 3 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ANTH 204</td>
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<td>Anthropology of Meaning</td>
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<tr>
<td>ANTH 227</td>
<td>3</td>
<td>Medical Anthropology</td>
</tr>
<tr>
<td>ANTH 302</td>
<td>3</td>
<td>New Horizons in Medical Anthropology</td>
</tr>
<tr>
<td>ANTH 314</td>
<td>3</td>
<td>Psychological Anthropology 01</td>
</tr>
<tr>
<td>ECON 440</td>
<td>3</td>
<td>Health Economics</td>
</tr>
<tr>
<td>GEOG 221</td>
<td>3</td>
<td>Environment and Health</td>
</tr>
<tr>
<td>GEOG 303</td>
<td>3</td>
<td>Health Geography</td>
</tr>
</tbody>
</table>
HIST 249 (3) Health and the Healer in Western History
HIST 335 (3) Science and Medicine in Canada
HIST 350 (3) Science and the Enlightenment
HIST 381 (3) Colonial Africa: Health/Disease
HIST 396 (3) Disease in Africa Since 1960
HIST 424 (3) Gender, Sexuality & Medicine
HIST 447 (3) The Natural History of America
HSEL 308 (3) Issues in Women's Health
HSEL 309 (3) Women's Reproductive Health
PHIL 237 (3) Contemporary Moral Issues
PHIL 343 (3) Biomedical Ethics
PHIL 443 (3) Topics in Biomedical Ethics
POLI 417 (3) Health Care in Canada
PSYC 215 (3) Social Psychology
PSYC 304 (3) Child Development
PSYC 333 (3) Personality and Social Psychology
PSYC 412 (3) Developmental Psychopathology
PSYC 413 (3) Cognitive Development
PSYC 414 (3) Social Development
SOCI 225 (3) Medicine and Health in Modern Society
SOCI 309 (3) Health and Illness
SOCI 310 (3) Sociology of Mental Disorder
SOCI 338 (3) Introduction to Biomedical Knowledge
SOCI 365 (3) Health and Development
SOCI 390 (3) Gender and Health
SOCI 422 (3) Health Care Providers
SOCI 515 (3) Medicine and Society
SOCI 525 (3) Health Care Systems in Comparative Perspective
SOCI 538 (3) Selected Topics in Sociology of Biomedical Knowledge

**Empirical Science and Technology**
At least 3 credits from:

* Students who have already received credit for MATH 324 will NOT receive credit for GEOG 202, MATH 203, PSYC 204, BIOL 373, MATH 204, or PSYC 305.

Credit given for statistics courses is subject to certain restrictions. Students should consult the "Course Overlap" information in the "Course Requirements" section for the Faculty of Science.

BIOL 309 (3) Mathematical Models in Biology
BIOL 373 (3) Biometry
COMP 202 (3) Introduction to Computing 1
COMP 364 (3) Computer Tools for Life Sciences
COMP 462 (3) Computational Biology Methods
GEOG 202 (3) Statistics and Spatial Analysis
MATH 203 (3) Principles of Statistics 1
12.14.19 Kinesiology for Science Students

12.14.19.1 Location

Department of Kinesiology and Physical Education
Curie Gymnasium
475 Pine Avenue West
Montreal, Quebec H2W 1S4

Telephone: 514-398-4184
Fax: 514-398-4186
Website: www.mcgill.ca/edu-kpe
Email: kin.physed@mcgill.ca

12.14.19.2 About Kinesiology for Science Students

Students planning a career in the health sciences, whether as a health professional or a biomedical researcher, will find courses in Kinesiology to be of interest from both theoretical and applied perspectives. There is a focus on the benefits of physical activity for health and well-being, as well as appropriate prescription of exercise in the treatment of various diseases, injuries, and disabilities. Courses deal with both prevention and rehabilitation.

12.14.19.3 Bachelor of Science (B.Sc.) - Minor Kinesiology (24 credits)

The Minor Kinesiology is designed to provide students in B.Sc. programs with basic but comprehensive knowledge of scientific bases of human physical activity and its relationship with health and well-being.

Students registered in the Minor Kinesiology may not take additional courses outside the Faculties of Arts and of Science.

Required Courses (15 credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDKP 206</td>
<td>(3)</td>
<td>Biomechanics of Human Movement</td>
</tr>
<tr>
<td>EDKP 261</td>
<td>(3)</td>
<td>Motor Development</td>
</tr>
<tr>
<td>EDKP 395</td>
<td>(3)</td>
<td>Exercise Physiology</td>
</tr>
<tr>
<td>PHGY 209</td>
<td>(3)</td>
<td>Mammalian Physiology 1</td>
</tr>
<tr>
<td>PHGY 210</td>
<td>(3)</td>
<td>Mammalian Physiology 2</td>
</tr>
</tbody>
</table>

Complementary Courses (9 credits)

9 credits, three of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDKP 330</td>
<td>(3)</td>
<td>Physical Activity and Health</td>
</tr>
<tr>
<td>EDKP 394</td>
<td>(3)</td>
<td>Historical Perspectives</td>
</tr>
<tr>
<td>EDKP 396</td>
<td>(3)</td>
<td>Adapted Physical Activity</td>
</tr>
<tr>
<td>EDKP 405</td>
<td>(3)</td>
<td>Sport in Society</td>
</tr>
<tr>
<td>EDKP 444</td>
<td>(3)</td>
<td>Ergonomics</td>
</tr>
<tr>
<td>EDKP 445</td>
<td>(3)</td>
<td>Exercise Metabolism</td>
</tr>
<tr>
<td>EDKP 446</td>
<td>(3)</td>
<td>Physical Activity and Ageing</td>
</tr>
<tr>
<td>EDKP 447</td>
<td>(3)</td>
<td>Motor Control</td>
</tr>
<tr>
<td>EDKP 448</td>
<td>(3)</td>
<td>Exercise and Health Psychology</td>
</tr>
</tbody>
</table>
12.14.20 Management Minor Programs

The Desautels Faculty of Management offers four programs for non-Management students open for application to students in the Faculty of Science. Please refer to the Desautels Faculty of Management section of this publication for detailed information about program requirements and applying.

- Finance for Non-Management Students; see Desautels Faculty of Management > Minor Finance (For Non-Management Students) (18 credits).
- Management for Non-Management Students; see Desautels Faculty of Management > Minor Management (For Non-Management Students) (18 credits).
  As of the 2008-09 academic year, the Minor in Management for Science students was retired. Students currently registered in the program should consult with their program adviser and refer to the Calendar for the academic year in which they began the program for guidance about program requirements.
- Marketing for Non-Management Students; see Desautels Faculty of Management > Minor Marketing (For Non-Management Students) (18 credits).
- Operations Management for Non-Management Students; see Desautels Faculty of Management > Minor Operations Management (For Non-Management Students) (18 credits).

Also available to Science students is the Minor in Technological Entrepreneurship for Science students; see section 12.14.35: Technological Entrepreneurship for Science Students. (Please note that this Minor is currently under revision.)

12.14.21 Mathematics and Statistics (MATH)

12.14.21.1 Location

Burnside Hall, Room 1005
805 Sherbrooke Street West
Montreal, Quebec H3A 2K6

Telephone: 514-398-3800
Fax: 514-398-3899
Website: www.math.mcgill.ca


Mathematics has evolved to a discipline that is mainly characterized by its method of proof, its concern for a progressive broadening of its concepts, and by the search for mathematical entities and operations that represent aspects of reality. It is a subject that is pursued by many for its own sake, and regarded as part of the mainstream of human culture. Mathematics pervades modern society with an impact which, already immense, is rapidly growing.

The two principal divisions of mathematics are pure mathematics and applied mathematics. The pure mathematician is interested in abstract mathematical structures and in mathematics as an intellectual enterprise. The primary concern may not be with its utilitarian aspects or with the current needs of science and technology, although many problems in pure mathematics have developed from the sciences.

The applied mathematician is more interested in how mathematics can be used to study some aspects of the world. Mathematicians are engaged in the creation, study and application of advanced mathematical methods relevant to scientific problems. Statistical science and methodology today is concerned with phenomena in which there is a background of uncertainty arising from inherent variability and the investigator is obliged to arrive at decisions from limited data. A key tool in statistics is probability.

Some of the fields in which pure mathematicians work are algebra, analysis, geometry, topology, number theory, and foundations. Applied mathematics, which once referred to the application of mathematics to such disciplines as mechanics and fluid dynamics, has currently assumed a much broader meaning and embraces such diverse fields as communication theory, theory of optimization, theory of games, and numerical analysis.

Mathematics offers many vocational possibilities. Such fields as teaching, computing, applied statistics, and actuarial science offer opportunities for B.Sc. graduates. Opportunities to do original research in pure and applied mathematics are available in universities and research institutions. Employment is to be found in financially or technologically oriented business firms. The Department of Mathematics and Statistics through its various programs attempts to provide courses to suit the diverse interests within mathematics and statistics.

The Honours program demands of the student a talent for abstraction in addition to a high level of competence in the use of mathematical tools. This program is intended for students who plan to work in an area where mathematical innovations may be needed. It is almost essential for students contemplating a career in mathematical research.
The Major program involves the same subjects as the Honours program but is less demanding in terms of abstraction. It is designed primarily for students who will need mathematical tools in their work but whose creative activity will involve applications of mathematics to other areas. Within the framework of the Mathematics Major, various combinations of courses are suggested to meet the needs of different students. These include course suggestions for secondary school teachers, careers in management, and for careers in industry, government, or actuarial sciences.

It is possible for Major students to include a number of Honours courses in their programs. This will be an advantage for those students who plan to use their mathematics in graduate studies.

Students interested in a Mathematics program linked to other disciplines are advised to consider the B.Sc. Liberal program with a core component in Mathematics or Statistics, or our joint programs with Computer Science, Physiology, and Physics.

In planning their programs, students are advised to seriously consider developing some depth in another discipline – preferably one for which mathematics has some relevance and use. Mathematics has been closely linked to areas such as computer science, physics, and engineering but has recently come to play an increasingly important role in fields such as biology, linguistics, management, and psychology. Students should consider completing the requirements for minor programs such as those available in Cognitive Science, Computer Science, and Statistics.

Students considering programs in Mathematics and Statistics should contact the Department to arrange for academic advising.

The student's attention is called to the fact that a B.Com. degree with a Major in Mathematics is available from the Desautels Faculty of Management. In addition, the Schulich School of Music offers the B.Mus. degree with Honours in Theory with Mathematics Option.

12.14.21.3 Internship Opportunities

Students who want to get practical experience in industry before graduation are encouraged to participate in one of the following internship programs:

- The Internship Year in Science (IYS) is an academic program offered for a duration of 8, 12, or 16 months. It is reflected on the transcript and included in the program name (Bachelor of Science - Internship program). Eligible students usually take this program between their U2 and U3 years.
- The Industrial Practicum (IP) has a duration of 4 months and is usually carried out starting in May. It will appear as a 0-credit, Pass/Fail course on your transcript.

For more information on these programs, consult section 12.13.1: Industrial Practicum (IP) and Internship Year in Science (IYS).

Note: Students entering a program listed below that has MATH 222 (Calculus 3) as a required course and who have successfully completed a course equivalent to MATH 222 with a grade of C or better may omit MATH 222 (Calculus 3) from the program, but must replace it with 3 credits of elective courses.

12.14.21.4 Mathematics and Statistics (MATH) Faculty

Chair

Jacques Hurtubise

Emeritus Professors

Michael Barr; A.B., Ph.D.(Penn.) (Peter Redpath Emeritus Professor of Pure Mathematics)
William G. Brown; M.A.(Col.), B.A., Ph.D.(Tor.)
Marta Bunge; M.A., Ph.D.(Penn.)
Jal R. Choksi; B.A.(Cant.), Ph.D.(Manc.)
Ian Connell; B.Sc., M.Sc. (Manit.), Ph.D.(McG.)
Kohur GowriSankaran; B.A., M.A.(Madr.), Ph.D.(Bom.)
Paul Koosis; B.A., Ph.D.(Calif., Berk.)
Joachim Lambek; M.Sc., Ph.D.(McG.), F.R.S.C. (Peter Redpath Emeritus Professor of Pure Mathematics)
Michael Makkai; M.A., Ph.D.(Bud.) (Peter Redpath Emeritus Professor of Pure Mathematics)
Sherwin A. Maslowe; B.Sc.(Wayne State), M.Sc., Ph.D.(Calif.)
Arak M. Mathai; M.Sc.(Kerala), M.A., Ph.D.(Tor.)
Karl Peter Russel; Vor.Dip.(Hamburg), Ph.D.(Calif.)
Georg Schmidt; B.Sc.(Natal), M.Sc.(S. Af.), Ph.D.(Stan.)
V. Seshadri; B.Sc., M.Sc.(Madr.), Ph.D.(Okla.)
George P.H. Styan; M.A., Ph.D.(Col.)
Kwok Kuen Tam; M.A., Ph.D.(Tor.)
John C. Taylor; B.Sc.(Acad.), M.A.(Qu.), Ph.D.(McM.)
### Emeritus Professors
Sanjo Zlobec; M.Sc.(Zagreb), Ph.D.(N'western)

### Professors
William J. Anderson; B.Eng., Ph.D.(McG.)
Henri Darmon; B.Sc.(McG.), Ph.D.(Harv.), F.R.S.C. (James McGill Professor)
Stephen W. Drury; M.A., Ph.D.(Cant.)
Christian Genest; B.Sp.Sc.(UQAC), M.Sc.(UQAM), Ph.D.(Br. Col)
Eyal Z. Goren; B.A., M.S., Ph.D.(Hebrew)
Pengfei Guan; B.Sc.(Zhejiang), M.Sc., Ph.D.(Princ.) (Canada Research Chair)
Jacques C. Hurtubise; B.Sc.(Montr.), Ph.D.(Oxf.), F.R.S.C.
Dmitry Jakobson; B.Sc.(MIT), Ph.D.(Princ.) (William Dawson Scholar)
Vojkan Jaksic; B.S.(Belgrade), Ph.D.(Calif. Tech.)
Niky Kamran; B.Sc., M.Sc.(Brussels), Ph.D.(Wat.), F.R.S.C. (James McGill Professor)
Olga Kharlampovich; M.A.(Ural State), Ph.D.(Leningrad), Dr.Sc.(Steklov Institute)
Charles Roth; M.Sc.(McG.), Ph.D.(Hebrew)
F. Bruce Shepherd; B.Sc.(Vic., Tor.), M.Sc., Ph.D.(Wat.) (James McGill Professor)
David A. Stephens; B.Sc., Ph.D.(Nott.)
John A. Toth; B.Sc., M.Sc.(McM.), Ph.D.(MIT) (William Dawson Scholar)
Daniel T. Wise; B.A.(Yeshiva), Ph.D.(Princ.)
David Wolfson; M.Sc.(Natal), Ph.D.(Purd.)
JianJu Xu; B.Sc., M.Sc.(Beijing), M.Sc., Ph.D.(Renss.)

### Associate Professors
Masoud Asgharian; B.Sc.(Shahid Beheshti), M.Sc., Ph.D.(McG.)
Peter Bartello; B.Sc.(Tor.), M.Sc., Ph.D.(McG.) (joint appt. with Atmospheric and Oceanic Sciences)
Rustum Choksi; B.Sc.(Tor.), M.Sc., Ph.D.(Brown)
Antony Humphries; B.A., M.A.(Camb.), Ph.D.(Bath)
Wilbur Jonsson; M.Sc.(Manit.), Dr.Rer.Nat.(Tübingen)
Ivo Klemes; B.Sc.(Tor.), Ph.D.(Calif. Tech.)
James G. Loveys; B.A.(St. Mary's), M.Sc., Ph.D.(S. Fraser)
Neville G.F. Sancho; B.Sc., Ph.D.(Belf.)
Robert Seiringer; M.Sc., Ph.D.(Vienna)
Russell Steele; B.S., M.S.(Carn. Mell), Ph.D.(Wash.)
Alain Vandal; B.Sc., M.Sc.(McG.), Ph.D.(Auck.)
Adrian Vetta; B.Sc., M.Sc.(LSE), Ph.D.(MIT) (joint appt. with Computer Science)

### Assistant Professors
Louigi Addario-Berry; B.Sc., M.Sc., Ph.D.(McG.)
Jayce Getz; A.B.(Harv), Ph.D.(Wisc.)
Abbas Khalili; B.S., M.S.(Esfahan), Ph.D.(Wat.)
Jean-Christophe Nave; M.Sc., Ph.D.(Calif., Santa Barbara)
Johanna Neslehova; Vor.Dip.(Prague), Dipl.(Hamburg), Ph.D.(Oldenburg)
### Assistant Professors
Gantumur Tsogtgerel; B.Sc.(Mongolia), M.Sc.(Netherlands), Ph.D.(Utrecht)
Johannes Walcher; Dip., Ph.D.(ETH) (*joint appt. with Physics*)

### Associate Members
Xiao-Wen Chang (*Computer Science*)
Luc P. Devroye (*Computer Science*)
P.R.L. Dutilleul (*Plant Science*)
Eliot Fried (*Mechanical Engineering*)
Leon Glass (*Physiology*)
George Haller (*Mechanical Engineering*)
James A. Hanley (*Epidemiology & Biostatistics*)
Lawrence Joseph (*Epidemiology & Biostatistics*)
Michael Mackey (*Physiology*)
Lawrence A. Mysak (*A.O.S.*)
Christopher Conway Paige (*Computer Science*)
Prakash Panangaden (*Computer Science*)
Robert W. Platt (*Pediatrics*)
James O. Ramsay (*Psychology*)
George Alexander Whitmore (*Management*)
Christina Wolfson (*Epidemiology & Biostatistics*)

### Adjunct Professors
Vasek Chvatal; M.A.(Charles U., Prague), Ph.D.(Wat.)
Martin J. Gander; M.S.(ETH), M.S., Ph.D.(Stan.)
Andrew Granville; B.A., CASM(Camb.), Ph.D.(Qu.)
Adrian Iovita; B.S.(Bucharest), Ph.D.(Boston)
Ming Mei; B.Sc., M.Sc.(Jiangxi Normal Univ.), Ph.D.(Kanazawa)
Alexei Miasnikov; M.Sc.(Novosibirsk), Ph.D., Dr.Sc.(Leningrad)
M. Ram Murty; B.Sc.(Car.), Ph.D.(MIT), F.R.S.C.
Vladimir Remeslenikov; M.Sc.(Perm, Russia), Ph.D.(Novosibirsk)
Robert A. Seely; B.Sc.(McG.), Ph.D.(Cant.)
Thomas Wihler; M.S., Ph.D.(ETH)

### Faculty Lecturers
Jose A. Correa; M.Sc.(Wat.), Ph.D.(Car.)
Heekyoung Hahn; M.S.(Sookmyung), Ph.D.(Ill.-Urbana-Champaign)
Axel Hundemer; M.Sc., Ph.D.(Munich)
Armel Djivede Kelome; M.Sc.(Benin), M.Sc.(McG.), Ph.D.(Georgia Tech.)

### 12.14.21.5 Bachelor of Science (B.Sc.) - Minor Mathematics (24 credits)
The Minor may be taken in conjunction with any primary program in the Faculty of Science (other than programs in Mathematics). Students should declare their intention to follow the Minor Mathematics at the beginning of the penultimate year and should obtain approval for the selection of courses to fulfil the requirements for the Minor from the Departmental Chief Adviser (or delegate).
It is strongly recommended that students in the Minor program take MATH 323. The remaining credits may be freely chosen from the required and complementary courses for majors and honours students in Mathematics, with the obvious exception of courses that involve duplication of material. Alternatively, up to 6 credits may be allowed for appropriate courses from other departments.

Generally, no more than 6 credits of overlap are permitted between the Minor and the primary program. However, with an approved choice of substantial courses, the overlap restriction may be relaxed to 9 credits for students whose primary program requires 60 credits or more, and to 12 credits when the primary program requires 72 credits or more.

**Required Courses (9 credits)**

* MATH 223 may be replaced by MATH 235 and MATH 236. In this case, the complementary credit requirement is reduced by 3 credits.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 223*</td>
<td>3</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 315</td>
<td>3</td>
<td>Ordinary Differential Equations</td>
</tr>
</tbody>
</table>

**Complementary Courses (15 credits)**

15 credits selected from the required and complementary courses for majors and honours students in Mathematics, with MATH 323 strongly recommended; alternatively, up to 6 credits may be allowed for appropriate courses from other departments.

**12.14.21.6 Bachelor of Science (B.Sc.) - Minor Statistics (24 credits)**

The Minor may be taken in conjunction with any primary program in the Faculty of Science. Students should declare their intention to follow the Minor Statistics at the beginning of the penultimate year and must obtain approval for the selection of courses to fulfil the requirements for the Minor from the Departmental Chief Adviser (or delegate).

All courses counted towards the Minor must be passed with a grade of C or better. Generally, no more than 6 credits of overlap are permitted between the Minor and the primary program. However, with an approved choice of substantial courses, the overlap restriction may be relaxed to 9 credits for students whose primary program requires 60 credits or more, and to 12 credits when the primary program requires 72 credits or more.

**Required Courses (15 credits)**

* MATH 223 may be replaced by MATH 235 and MATH 236. In this case the complementary credit requirement is reduced by 3 credits.

<table>
<thead>
<tr>
<th>Course</th>
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<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 223*</td>
<td>3</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 323</td>
<td>3</td>
<td>Probability</td>
</tr>
<tr>
<td>MATH 324</td>
<td>3</td>
<td>Statistics</td>
</tr>
<tr>
<td>MATH 423</td>
<td>3</td>
<td>Regression and Analysis of Variance</td>
</tr>
</tbody>
</table>

**Complementary Courses (9 credits)**

9 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 593</td>
<td>3</td>
<td>Statistical Mechanics</td>
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<tr>
<td>GEOG 351</td>
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<td>Quantitative Methods</td>
</tr>
<tr>
<td>MATH 447</td>
<td>3</td>
<td>Introduction to Stochastic Processes</td>
</tr>
<tr>
<td>MATH 523</td>
<td>4</td>
<td>Generalized Linear Models</td>
</tr>
<tr>
<td>MATH 525</td>
<td>4</td>
<td>Sampling Theory and Applications</td>
</tr>
<tr>
<td>MATH 556</td>
<td>4</td>
<td>Mathematical Statistics 1</td>
</tr>
<tr>
<td>MATH 557</td>
<td>4</td>
<td>Mathematical Statistics 2</td>
</tr>
<tr>
<td>PHYS 362</td>
<td>3</td>
<td>Statistical Mechanics</td>
</tr>
<tr>
<td>PHYS 559</td>
<td>3</td>
<td>Advanced Statistical Mechanics</td>
</tr>
<tr>
<td>SOCI 504</td>
<td>3</td>
<td>Quantitative Methods 1</td>
</tr>
<tr>
<td>SOCI 505</td>
<td>3</td>
<td>Quantitative Methods 2</td>
</tr>
</tbody>
</table>

No more than 6 credits may be taken outside the Department of Mathematics and Statistics.
Further credits (if needed) may be freely chosen from the required and complementary courses for majors and honours students in Mathematics, with the obvious exception of courses that involve duplication of material.

12.14.21.7 Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Mathematics (45 credits)

Program Prerequisites
Students entering the Core Science Component in Mathematics are normally expected to have completed the courses below or their equivalents. Otherwise, they will be required to make up any deficiencies in these courses over and above the 45 credits required for the program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 133</td>
<td>(3)</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>MATH 140</td>
<td>(3)</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 141</td>
<td>(4)</td>
<td>Calculus 2</td>
</tr>
</tbody>
</table>

Guidelines for Selection of Courses
The following informal guidelines should be discussed with the student's adviser. Where appropriate, Honours courses may be substituted for equivalent Major courses. Students planning to pursue graduate studies are encouraged to make such substitutions.

- Students interested in computer science are advised to choose courses from the following: MATH 317, MATH 318, MATH 327, MATH 328, MATH 335, MATH 340, MATH 407, MATH 417 and to complete the Computer Science Minor.
- Students interested in probability and statistics are advised to take MATH 204, MATH 236, MATH 314, MATH 323, MATH 347, MATH 407, MATH 417.
- Students considering a career in secondary school teaching are advised to take MATH 318, MATH 328, MATH 338, MATH 339, MATH 346, MATH 348.
- Students interested in careers in business, industry or government are advised to select courses from the following list:
  MATH 317, MATH 319, MATH 327, MATH 329, MATH 407, MATH 417, MATH 423, MATH 430, MATH 447, MATH 523, MATH 525.

Required Courses (27 credits)
* Students may select either MATH 249 or MATH 316 but not both.
** Students who have successfully completed a course equivalent to MATH 222 with a grade of C or better may omit MATH 222, but must replace it with 3 credits of elective courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 222**</td>
<td>(3)</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 235</td>
<td>(3)</td>
<td>Algebra 1</td>
</tr>
<tr>
<td>MATH 236</td>
<td>(3)</td>
<td>Algebra 2</td>
</tr>
<tr>
<td>MATH 242</td>
<td>(3)</td>
<td>Analysis 1</td>
</tr>
<tr>
<td>MATH 243</td>
<td>(3)</td>
<td>Analysis 2</td>
</tr>
<tr>
<td>MATH 249*</td>
<td>(3)</td>
<td>Honours Complex Variables</td>
</tr>
<tr>
<td>MATH 314</td>
<td>(3)</td>
<td>Advanced Calculus</td>
</tr>
<tr>
<td>MATH 315</td>
<td>(3)</td>
<td>Ordinary Differential Equations</td>
</tr>
<tr>
<td>MATH 316*</td>
<td>(3)</td>
<td>Complex Variables</td>
</tr>
<tr>
<td>MATH 323</td>
<td>(3)</td>
<td>Probability</td>
</tr>
</tbody>
</table>

Complementary Courses (18 credits)
18 credits selected from the following list, with at least 6 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 317</td>
<td>(3)</td>
<td>Numerical Analysis</td>
</tr>
<tr>
<td>MATH 324</td>
<td>(3)</td>
<td>Statistics</td>
</tr>
<tr>
<td>MATH 335</td>
<td>(3)</td>
<td>Computational Algebra</td>
</tr>
<tr>
<td>MATH 340</td>
<td>(3)</td>
<td>Discrete Structures 2</td>
</tr>
</tbody>
</table>

the remainder of the 18 credits to be selected from:
MATH 204 (3) Principles of Statistics 2
MATH 318 (3) Mathematical Logic
MATH 319 (3) Introduction to Partial Differential Equations
MATH 320 (3) Differential Geometry
MATH 326 (3) Nonlinear Dynamics and Chaos
MATH 327 (3) Matrix Numerical Analysis
MATH 328 (3) Computability and Mathematical Linguistics
MATH 329 (3) Theory of Interest
MATH 338 (3) History and Philosophy of Mathematics
MATH 339 (3) Foundations of Mathematics
MATH 346 (3) Number Theory
MATH 348 (3) Topics in Geometry
MATH 352 (1) Problem Seminar
MATH 407 (3) Dynamic Programming
MATH 410 (3) Majors Project
MATH 417 (3) Mathematical Programming
MATH 423 (3) Regression and Analysis of Variance
MATH 430 (3) Mathematical Finance
MATH 447 (3) Introduction to Stochastic Processes
MATH 523 (4) Generalized Linear Models
MATH 524 (4) Nonparametric Statistics
MATH 525 (4) Sampling Theory and Applications

12.14.21.8 Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Statistics (45 credits)

Program Prerequisites
Students entering the Core Science Component in Statistics are normally expected to have completed the courses below or their equivalents. Otherwise they will be required to make up any deficiencies in these courses over and above the 45 credits required for the program.

MATH 133 (3) Linear Algebra and Geometry
MATH 140 (3) Calculus 1
MATH 141 (4) Calculus 2

Required Courses (27 credits)
* Students who have successfully completed a course equivalent to MATH 222 with a grade of C or better may omit MATH 222, but must replace it with 3 credits of elective courses.

MATH 222* (3) Calculus 3
MATH 235 (3) Algebra 1
MATH 236 (3) Algebra 2
MATH 242 (3) Analysis 1
MATH 243 (3) Analysis 2
MATH 314 (3) Advanced Calculus
MATH 323 (3) Probability
MATH 324 (3) Statistics
MATH 423 (3) Regression and Analysis of Variance
Complementary Courses (18 credits)

18 credits selected from the following list, with at least 6 credits selected from:

* Students may take either MATH 316 or MATH 249, but not both.

- MATH 249* (3) Honours Complex Variables
- MATH 315 (3) Ordinary Differential Equations
- MATH 316* (3) Complex Variables
- MATH 317 (3) Numerical Analysis
- MATH 335 (3) Computational Algebra
- MATH 340 (3) Discrete Structures 2

at least 7 credits selected from:

- MATH 447 (3) Introduction to Stochastic Processes
- MATH 523 (4) Generalized Linear Models
- MATH 525 (4) Sampling Theory and Applications

the remainder of the 18 credits to be selected from:

- MATH 204 (3) Principles of Statistics 2
- MATH 318 (3) Mathematical Logic
- MATH 319 (3) Introduction to Partial Differential Equations
- MATH 320 (3) Differential Geometry
- MATH 326 (3) Nonlinear Dynamics and Chaos
- MATH 327 (3) Matrix Numerical Analysis
- MATH 328 (3) Computability and Mathematical Linguistics
- MATH 329 (3) Theory of Interest
- MATH 338 (3) History and Philosophy of Mathematics
- MATH 339 (3) Foundations of Mathematics
- MATH 346 (3) Number Theory
- MATH 348 (3) Topics in Geometry
- MATH 352 (1) Problem Seminar
- MATH 407 (3) Dynamic Programming
- MATH 410 (3) Majors Project
- MATH 417 (3) Mathematical Programming
- MATH 430 (3) Mathematical Finance

12.14.21.9 Bachelor of Science (B.Sc.) - Major Mathematics (54 credits)

Program Prerequisites

Students entering the Major program are normally expected to have completed the courses below or their equivalents. Otherwise, they will be required to make up any deficiencies in these courses over and above the 54 credits of required courses.

- MATH 133 (3) Linear Algebra and Geometry
- MATH 140 (3) Calculus 1
Guidelines for Selection of Courses in the Major Program

The following informal guidelines should be discussed with the student's adviser. Where appropriate, Honours courses may be substituted for equivalent Major courses. Students planning to pursue graduate studies are encouraged to make such substitutions.

Students interested in computer science are advised to choose courses from the following: MATH 317, MATH 318, MATH 327, MATH 328, MATH 335, MATH 340, MATH 407, MATH 417 and to complete the Computer Science Minor.

Students interested in probability and statistics are advised to take MATH 204, MATH 324, MATH 407, MATH 423, MATH 447, MATH 523, MATH 525.

Students interested in applied mathematics should take MATH 317, MATH 319, MATH 324, MATH 326, MATH 327, MATH 407, MATH 417.

Students considering a career in secondary school teaching are advised to take MATH 318, MATH 328, MATH 338, MATH 339, MATH 346, MATH 348.

Students interested in careers in business, industry or government are advised to select courses from the following list:

- MATH 317, MATH 319, MATH 327, MATH 329, MATH 407, MATH 417, MATH 423, MATH 430, MATH 447, MATH 523, MATH 525.

Required Courses (27 credits)

Note: Students who have done well in MATH 235 and MATH 242 should consider entering the Honours stream by registering in MATH 251 and MATH 255 instead of MATH 236 and MATH 243.

* Students may select either MATH 249 or MATH 316 but not both.

** Students who have successfully completed a course equivalent to MATH 222 with a grade of C or better may omit MATH 222, but must replace it with 3 credits of elective courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 222**</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 235</td>
<td>3</td>
<td>Algebra 1</td>
</tr>
<tr>
<td>MATH 236</td>
<td>3</td>
<td>Algebra 2</td>
</tr>
<tr>
<td>MATH 242</td>
<td>3</td>
<td>Analysis 1</td>
</tr>
<tr>
<td>MATH 243</td>
<td>3</td>
<td>Analysis 2</td>
</tr>
<tr>
<td>MATH 249*</td>
<td>3</td>
<td>Honours Complex Variables</td>
</tr>
<tr>
<td>MATH 314</td>
<td>3</td>
<td>Advanced Calculus</td>
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<tr>
<td>MATH 315</td>
<td>3</td>
<td>Ordinary Differential Equations</td>
</tr>
<tr>
<td>MATH 316*</td>
<td>3</td>
<td>Complex Variables</td>
</tr>
<tr>
<td>MATH 323</td>
<td>3</td>
<td>Probability</td>
</tr>
</tbody>
</table>

Complementary Courses (27 credits)

27 credits selected as follows:

21 credits selected from the following list, with at least 6 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 317</td>
<td>3</td>
<td>Numerical Analysis</td>
</tr>
<tr>
<td>MATH 324</td>
<td>3</td>
<td>Statistics</td>
</tr>
<tr>
<td>MATH 335</td>
<td>3</td>
<td>Computational Algebra</td>
</tr>
<tr>
<td>MATH 340</td>
<td>3</td>
<td>Discrete Structures 2</td>
</tr>
</tbody>
</table>

the remainder of the 21 credits to be selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 204</td>
<td>3</td>
<td>Principles of Statistics 2</td>
</tr>
<tr>
<td>MATH 318</td>
<td>3</td>
<td>Mathematical Logic</td>
</tr>
<tr>
<td>MATH 319</td>
<td>3</td>
<td>Introduction to Partial Differential Equations</td>
</tr>
<tr>
<td>MATH 320</td>
<td>3</td>
<td>Differential Geometry</td>
</tr>
<tr>
<td>MATH 326</td>
<td>3</td>
<td>Nonlinear Dynamics and Chaos</td>
</tr>
</tbody>
</table>
Matrix Numerical Analysis (3) MATH 327
Computability and Mathematical Linguistics (3) MATH 328
Theory of Interest (3) MATH 329
History and Philosophy of Mathematics (3) MATH 338
Foundations of Mathematics (3) MATH 339
Number Theory (3) MATH 346
Topics in Geometry (3) MATH 348
Problem Seminar (1) MATH 352
Dynamic Programming (3) MATH 407
Majors Project (3) MATH 410
Mathematical Programming (3) MATH 417
Regression and Analysis of Variance (3) MATH 423
Mathematical Finance (3) MATH 430
Introduction to Stochastic Processes (3) MATH 447
Generalized Linear Models (4) MATH 523
Sampling Theory and Applications (4) MATH 525

6 additional credits in Mathematics or related disciplines selected in consultation with the Adviser.

121421.10 Bachelor of Science (B.Sc.) - Major Mathematics and Computer Science (72 credits)

Program Prerequisites
Students entering the Joint Major in Mathematics and Computer Science are normally expected to have completed the courses below or their equivalents. Otherwise, they will be required to make up any deficiencies in these courses over and above the 72 credits of courses in the program specification.

- MATH 133 (3) Linear Algebra and Geometry
- MATH 140 (3) Calculus 1
- MATH 141 (4) Calculus 2

Required Courses (54 credits)
* Students who have sufficient knowledge in a programming language do not need to take COMP 202 but can replace it with an additional Computer Science complementary course.

- COMP 202* (3) Introduction to Computing 1
- COMP 206 (3) Introduction to Software Systems
- COMP 250 (3) Introduction to Computer Science
- COMP 251 (3) Data Structures and Algorithms
- COMP 273 (3) Introduction to Computer Systems
- COMP 302 (3) Programming Languages and Paradigms
- COMP 310 (3) Operating Systems
- COMP 330 (3) Theoretical Aspects: Computer Science
- COMP 360 (3) Algorithm Design Techniques
- MATH 222 (3) Calculus 3
- MATH 235 (3) Algebra 1
- MATH 236 (3) Algebra 2
- MATH 242 (3) Analysis 1
### Required Courses (51 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 202*</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>COMP 206</td>
<td>3</td>
<td>Introduction to Software Systems</td>
</tr>
<tr>
<td>COMP 250</td>
<td>3</td>
<td>Introduction to Computer Science</td>
</tr>
<tr>
<td>COMP 251</td>
<td>3</td>
<td>Data Structures and Algorithms</td>
</tr>
<tr>
<td>COMP 273</td>
<td>3</td>
<td>Introduction to Computer Systems</td>
</tr>
<tr>
<td>COMP 302</td>
<td>3</td>
<td>Programming Languages and Paradigms</td>
</tr>
<tr>
<td>COMP 330</td>
<td>3</td>
<td>Theoretical Aspects: Computer Science</td>
</tr>
<tr>
<td>COMP 350**</td>
<td>3</td>
<td>Numerical Computing</td>
</tr>
<tr>
<td>COMP 360</td>
<td>3</td>
<td>Algorithm Design Techniques</td>
</tr>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 223***</td>
<td>3</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 235</td>
<td>3</td>
<td>Algebra 1</td>
</tr>
<tr>
<td>MATH 236***</td>
<td>3</td>
<td>Algebra 2</td>
</tr>
<tr>
<td>MATH 242</td>
<td>3</td>
<td>Analysis 1</td>
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<td>MATH 314</td>
<td>3</td>
<td>Advanced Calculus</td>
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<td>MATH 317**</td>
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<td>MATH 323</td>
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<td>Probability</td>
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<td>MATH 324</td>
<td>3</td>
<td>Statistics</td>
</tr>
<tr>
<td>MATH 423</td>
<td>3</td>
<td>Regression and Analysis of Variance</td>
</tr>
</tbody>
</table>

* Students who have sufficient knowledge in a programming language do not need to take COMP 202 but can replace it with an additional Computer Science complementary course.

** Students take either COMP 350 or MATH 317, but not both.

*** Students take either MATH 223 or MATH 236, but not both.
**Complementary Courses (21 credits)**

12 credits in Mathematics selected from:

* Students take either MATH 340 or MATH 350, but not both.

** MATH 578 and COMP 540 cannot both be taken for program credit.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
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<tbody>
<tr>
<td>MATH 327</td>
<td>3</td>
<td>Matrix Numerical Analysis</td>
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<tr>
<td>MATH 340*</td>
<td>3</td>
<td>Discrete Structures 2</td>
</tr>
<tr>
<td>MATH 350*</td>
<td>3</td>
<td>Graph Theory and Combinatorics</td>
</tr>
<tr>
<td>MATH 352</td>
<td>1</td>
<td>Problem Seminar</td>
</tr>
<tr>
<td>MATH 410</td>
<td>3</td>
<td>Majors Project</td>
</tr>
<tr>
<td>MATH 447</td>
<td>3</td>
<td>Introduction to Stochastic Processes</td>
</tr>
<tr>
<td>MATH 523</td>
<td>4</td>
<td>Generalized Linear Models</td>
</tr>
<tr>
<td>MATH 524</td>
<td>4</td>
<td>Nonparametric Statistics</td>
</tr>
<tr>
<td>MATH 525</td>
<td>4</td>
<td>Sampling Theory and Applications</td>
</tr>
<tr>
<td>MATH 578**</td>
<td>4</td>
<td>Numerical Analysis 1</td>
</tr>
</tbody>
</table>

9 credits in Computer Science selected as follows:

At least 6 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 423</td>
<td>3</td>
<td>Data Compression</td>
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<tr>
<td>COMP 424</td>
<td>3</td>
<td>Artificial Intelligence</td>
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<tr>
<td>COMP 462</td>
<td>3</td>
<td>Computational Biology Methods</td>
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<tr>
<td>COMP 490</td>
<td>3</td>
<td>Introduction to Probabilistic Analysis of Algorithms</td>
</tr>
<tr>
<td>COMP 526</td>
<td>3</td>
<td>Probabilistic Reasoning and AI</td>
</tr>
<tr>
<td>COMP 540**</td>
<td>3</td>
<td>Matrix Computations</td>
</tr>
<tr>
<td>COMP 547</td>
<td>4</td>
<td>Cryptography and Data Security</td>
</tr>
<tr>
<td>COMP 564</td>
<td>3</td>
<td>Computational Gene Regulation</td>
</tr>
<tr>
<td>COMP 566</td>
<td>3</td>
<td>Discrete Optimization 1</td>
</tr>
<tr>
<td>COMP 567</td>
<td>3</td>
<td>Discrete Optimization 2</td>
</tr>
</tbody>
</table>

The remaining Computer Science credits are selected from COMP courses at the 300 level or above (except COMP 396, COMP 400, and COMP 431) and ECSE 508.

**12.1421.12 Bachelor of Science (B.Sc.) - Honours Mathematics (60 credits)**

**Program Prerequisites**

The minimum requirement for entry into the Honours program is that the student has completed with high standing the following courses below or their equivalents. In addition, a student who has not completed the equivalent of MATH 222 must take it in the first term without receiving credits toward the credits required in the Honours program.

Students who transfer to Honours in Mathematics from other programs will have credits for previous courses assigned, as appropriate, by the Department.

To remain in an Honours program and to be awarded the Honours degree, the student must maintain a 3.00 GPA in the required and complementary Mathematics courses of the program, as well as an overall CGPA of 3.00.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
</tbody>
</table>
**Required Courses (48 credits)**

* MATH 314 may be substituted for MATH 248 if MATH 222 had to be taken in the Fall.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 235</td>
<td>3</td>
<td>Algebra 1</td>
</tr>
<tr>
<td>MATH 242</td>
<td>3</td>
<td>Analysis 1</td>
</tr>
<tr>
<td>MATH 248*</td>
<td>3</td>
<td>Honours Advanced Calculus</td>
</tr>
<tr>
<td>MATH 251</td>
<td>3</td>
<td>Honours Algebra 2</td>
</tr>
<tr>
<td>MATH 255</td>
<td>3</td>
<td>Honours Analysis 2</td>
</tr>
<tr>
<td>MATH 325</td>
<td>3</td>
<td>Honours Ordinary Differential Equations</td>
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<tr>
<td>MATH 354</td>
<td>3</td>
<td>Honours Analysis 3</td>
</tr>
<tr>
<td>MATH 355</td>
<td>3</td>
<td>Honours Analysis 4</td>
</tr>
<tr>
<td>MATH 356</td>
<td>3</td>
<td>Honours Probability</td>
</tr>
<tr>
<td>MATH 357</td>
<td>3</td>
<td>Honours Statistics</td>
</tr>
<tr>
<td>MATH 366</td>
<td>3</td>
<td>Honours Complex Analysis</td>
</tr>
<tr>
<td>MATH 370</td>
<td>3</td>
<td>Honours Algebra 3</td>
</tr>
<tr>
<td>MATH 371</td>
<td>3</td>
<td>Honours Algebra 4</td>
</tr>
<tr>
<td>MATH 375</td>
<td>3</td>
<td>Honours Partial Differential Equations</td>
</tr>
<tr>
<td>MATH 380</td>
<td>3</td>
<td>Honours Differential Geometry</td>
</tr>
<tr>
<td>MATH 470</td>
<td>3</td>
<td>Honours Research Project</td>
</tr>
</tbody>
</table>

**Complementary Courses (12 credits)**

12 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 350</td>
<td>3</td>
<td>Graph Theory and Combinatorics</td>
</tr>
<tr>
<td>MATH 352</td>
<td>1</td>
<td>Problem Seminar</td>
</tr>
<tr>
<td>MATH 376</td>
<td>3</td>
<td>Honours Nonlinear Dynamics</td>
</tr>
<tr>
<td>MATH 377</td>
<td>3</td>
<td>Honours Number Theory</td>
</tr>
<tr>
<td>MATH 387</td>
<td>3</td>
<td>Honours Numerical Analysis</td>
</tr>
<tr>
<td>MATH 397</td>
<td>3</td>
<td>Honours Matrix Numerical Analysis</td>
</tr>
<tr>
<td>MATH 480</td>
<td>3</td>
<td>Honours Independent Study</td>
</tr>
<tr>
<td>MATH 487</td>
<td>3</td>
<td>Honours Mathematical Programming</td>
</tr>
<tr>
<td>MATH 488</td>
<td>3</td>
<td>Honours Set Theory</td>
</tr>
</tbody>
</table>

all MATH 500-level courses.

Honours-level courses from related disciplines:

* COMP 250 may be preceded by COMP 202.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 250*</td>
<td>3</td>
<td>Introduction to Computer Science</td>
</tr>
<tr>
<td>COMP 252</td>
<td>3</td>
<td>Algorithms and Data Structures</td>
</tr>
</tbody>
</table>

no more than 6 credits from the following courses for which no Honours equivalent exists:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 204</td>
<td>3</td>
<td>Principles of Statistics 2</td>
</tr>
<tr>
<td>MATH 329</td>
<td>3</td>
<td>Theory of Interest</td>
</tr>
<tr>
<td>MATH 338</td>
<td>3</td>
<td>History and Philosophy of Mathematics</td>
</tr>
</tbody>
</table>
Students may select other courses with the permission of the Department.

1214213 Bachelor of Science (B.Sc.) - Honours Applied Mathematics (60 credits)

Applied Mathematics is a very broad field and students are encouraged to choose a coherent program of complementary courses. Most students specialize in “continuous” or “discrete” applied mathematics, but there are many sensible combinations of courses, and the following informal guidelines should be discussed with the student's adviser. Also, aside from seeking to develop a sound basis in Applied Mathematics, one of the objectives of the program is to kindle the students' interest in possible areas of application. To develop an appreciation of the diversity of Applied Mathematics, students are advised to develop some depth (e.g., by completing a minor) in a field related to Applied Mathematics such as Atmospheric and Oceanic Sciences, Biology, Biochemistry, Chemistry, Computer Science, Earth and Planetary Sciences, Economics, Engineering, Management, Physics, Physiology, and Psychology.

Required Courses (42 credits)

* COMP 250 may be preceded by COMP 202.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 250*</td>
<td>3</td>
<td>Introduction to Computer Science</td>
</tr>
<tr>
<td>COMP 252</td>
<td>3</td>
<td>Algorithms and Data Structures</td>
</tr>
<tr>
<td>MATH 235</td>
<td>3</td>
<td>Algebra 1</td>
</tr>
<tr>
<td>MATH 242</td>
<td>3</td>
<td>Analysis 1</td>
</tr>
<tr>
<td>MATH 248</td>
<td>3</td>
<td>Honours Advanced Calculus</td>
</tr>
<tr>
<td>MATH 251</td>
<td>3</td>
<td>Honours Algebra 2</td>
</tr>
<tr>
<td>MATH 255</td>
<td>3</td>
<td>Honours Analysis 2</td>
</tr>
<tr>
<td>MATH 325</td>
<td>3</td>
<td>Honours Ordinary Differential Equations</td>
</tr>
<tr>
<td>MATH 350</td>
<td>3</td>
<td>Graph Theory and Combinatorics</td>
</tr>
<tr>
<td>MATH 356</td>
<td>3</td>
<td>Honours Probability</td>
</tr>
<tr>
<td>MATH 357</td>
<td>3</td>
<td>Honours Statistics</td>
</tr>
<tr>
<td>MATH 375</td>
<td>3</td>
<td>Honours Partial Differential Equations</td>
</tr>
<tr>
<td>MATH 376</td>
<td>3</td>
<td>Honours Nonlinear Dynamics</td>
</tr>
<tr>
<td>MATH 470</td>
<td>3</td>
<td>Honours Research Project</td>
</tr>
</tbody>
</table>

Complementary Courses (18 credits)

Advising Notes:

Students interested in continuous applied mathematics are urged to choose these as part of their Complementary Courses: MATH 354 and MATH 355, and are advised to choose additional courses from MATH 387, MATH 397, MATH 555, MATH 556, MATH 560, MATH 574, MATH 578, MATH 579, MATH 580, MATH 581.

Students interested in discrete applied mathematics are advised to choose from these as part of their Complementary Courses: COMP 362, COMP 490, MATH 370, MATH 371, MATH 407, MATH 547, MATH 487, MATH 550, MATH 552, MATH 560.

3 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 249</td>
<td>3</td>
<td>Honours Complex Variables</td>
</tr>
<tr>
<td>MATH 366</td>
<td>3</td>
<td>Honours Complex Analysis</td>
</tr>
</tbody>
</table>

at least 3 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 387</td>
<td>3</td>
<td>Honours Numerical Analysis</td>
</tr>
<tr>
<td>MATH 397</td>
<td>3</td>
<td>Honours Matrix Numerical Analysis</td>
</tr>
</tbody>
</table>
and the remainder of credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 362</td>
<td>Honours Algorithm Design</td>
</tr>
<tr>
<td>COMP 490</td>
<td>Introduction to Probabilistic Analysis of Algorithms</td>
</tr>
<tr>
<td>MATH 352</td>
<td>Problem Seminar</td>
</tr>
<tr>
<td>MATH 354</td>
<td>Honours Analysis 3</td>
</tr>
<tr>
<td>MATH 355</td>
<td>Honours Analysis 4</td>
</tr>
<tr>
<td>MATH 370</td>
<td>Honours Algebra 3</td>
</tr>
<tr>
<td>MATH 371</td>
<td>Honours Algebra 4</td>
</tr>
<tr>
<td>MATH 377</td>
<td>Honours Number Theory</td>
</tr>
<tr>
<td>MATH 380</td>
<td>Honours Differential Geometry</td>
</tr>
<tr>
<td>MATH 480</td>
<td>Honours Independent Study</td>
</tr>
<tr>
<td>MATH 487</td>
<td>Honours Mathematical Programming</td>
</tr>
<tr>
<td>MATH 488</td>
<td>Honours Set Theory</td>
</tr>
<tr>
<td>MATH 490</td>
<td>Honours Mathematics of Finance</td>
</tr>
</tbody>
</table>

All MATH 500-level courses.

No more than 6 credits from the following courses for which no Honours equivalent exists:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 204</td>
<td>Principles of Statistics 2</td>
</tr>
<tr>
<td>MATH 329</td>
<td>Theory of Interest</td>
</tr>
<tr>
<td>MATH 338</td>
<td>History and Philosophy of Mathematics</td>
</tr>
<tr>
<td>MATH 339</td>
<td>Foundations of Mathematics</td>
</tr>
<tr>
<td>MATH 348</td>
<td>Topics in Geometry</td>
</tr>
<tr>
<td>MATH 407</td>
<td>Dynamic Programming</td>
</tr>
<tr>
<td>MATH 437</td>
<td>Mathematical Methods in Biology</td>
</tr>
</tbody>
</table>

Other courses with the permission of the Department.

** Bachelor of Science (B.Sc.) - Honours Probability and Statistics (64 credits)**

**Required Courses (46 credits)**

* COMP 250 may be preceded by COMP 202.

** Students select either MATH 251 or MATH 247, but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 250*</td>
<td>Introduction to Computer Science</td>
</tr>
<tr>
<td>MATH 235</td>
<td>Algebra 1</td>
</tr>
<tr>
<td>MATH 242</td>
<td>Analysis 1</td>
</tr>
<tr>
<td>MATH 247**</td>
<td>Honours Applied Linear Algebra</td>
</tr>
<tr>
<td>MATH 248</td>
<td>Honours Advanced Calculus</td>
</tr>
<tr>
<td>MATH 251**</td>
<td>Honours Algebra 2</td>
</tr>
<tr>
<td>MATH 255</td>
<td>Honours Analysis 2</td>
</tr>
<tr>
<td>MATH 354</td>
<td>Honours Analysis 3</td>
</tr>
<tr>
<td>MATH 356</td>
<td>Honours Probability</td>
</tr>
<tr>
<td>Course Code</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
</tr>
<tr>
<td>MATH 357</td>
<td>(3)</td>
</tr>
<tr>
<td>MATH 470</td>
<td>(3)</td>
</tr>
<tr>
<td>MATH 523</td>
<td>(4)</td>
</tr>
<tr>
<td>MATH 533</td>
<td>(4)</td>
</tr>
<tr>
<td>MATH 556</td>
<td>(4)</td>
</tr>
<tr>
<td>MATH 557</td>
<td>(4)</td>
</tr>
</tbody>
</table>

**Complementary Courses (18 credits)**

At least 3 credits from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 355</td>
<td>(3)</td>
<td>Honours Analysis 4</td>
</tr>
<tr>
<td>MATH 587</td>
<td>(4)</td>
<td>Advanced Probability Theory 1</td>
</tr>
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</table>

The remaining credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 325</td>
<td>(3)</td>
<td>Honours Ordinary Differential Equations</td>
</tr>
<tr>
<td>MATH 350</td>
<td>(3)</td>
<td>Graph Theory and Combinatorics</td>
</tr>
<tr>
<td>MATH 352</td>
<td>(1)</td>
<td>Problem Seminar</td>
</tr>
<tr>
<td>MATH 366</td>
<td>(3)</td>
<td>Honours Complex Analysis</td>
</tr>
<tr>
<td>MATH 375</td>
<td>(3)</td>
<td>Honours Partial Differential Equations</td>
</tr>
<tr>
<td>MATH 380</td>
<td>(3)</td>
<td>Honours Differential Geometry</td>
</tr>
<tr>
<td>MATH 387</td>
<td>(3)</td>
<td>Honours Numerical Analysis</td>
</tr>
<tr>
<td>MATH 397</td>
<td>(3)</td>
<td>Honours Matrix Numerical Analysis</td>
</tr>
<tr>
<td>MATH 480</td>
<td>(3)</td>
<td>Honours Independent Study</td>
</tr>
<tr>
<td>MATH 490</td>
<td>(3)</td>
<td>Honours Mathematics of Finance</td>
</tr>
<tr>
<td>MATH 524</td>
<td>(4)</td>
<td>Nonparametric Statistics</td>
</tr>
<tr>
<td>MATH 525</td>
<td>(4)</td>
<td>Sampling Theory and Applications</td>
</tr>
<tr>
<td>MATH 547</td>
<td>(4)</td>
<td>Stochastic Processes</td>
</tr>
<tr>
<td>MATH 550</td>
<td>(4)</td>
<td>Combinatorics</td>
</tr>
<tr>
<td>MATH 589</td>
<td>(4)</td>
<td>Advanced Probability Theory 2</td>
</tr>
</tbody>
</table>

With at most 3 credits from the following courses for which no Honours equivalent exists:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 204</td>
<td>(3)</td>
<td>Principles of Statistics 2</td>
</tr>
<tr>
<td>MATH 407</td>
<td>(3)</td>
<td>Dynamic Programming</td>
</tr>
</tbody>
</table>

**12.14.21.15 Bachelor of Science (B.Sc.) - Honours Mathematics and Computer Science (75 credits)**

Students may complete this program with a minimum of 72 credits or a maximum of 75 credits depending on whether or not they are exempt from taking COMP 202.

**Program Prerequisites**

Students must consult an Honours adviser in both departments. Students entering the Joint Honours in Mathematics and Computer Science are normally expected to have completed the courses below or their equivalents. Otherwise, they will be required to make up any deficiencies in these courses over and above the 72-75 credits of courses in the program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 133</td>
<td>(3)</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>MATH 140</td>
<td>(3)</td>
<td>Calculus 1</td>
</tr>
</tbody>
</table>
Required Courses (45 credits)

* Students who have sufficient knowledge in a programming language are not required to take COMP 202.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 202</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>COMP 206</td>
<td>3</td>
<td>Introduction to Software Systems</td>
</tr>
<tr>
<td>COMP 250</td>
<td>3</td>
<td>Introduction to Computer Science</td>
</tr>
<tr>
<td>COMP 252</td>
<td>3</td>
<td>Algorithms and Data Structures</td>
</tr>
<tr>
<td>COMP 273</td>
<td>3</td>
<td>Introduction to Computer Systems</td>
</tr>
<tr>
<td>COMP 302</td>
<td>3</td>
<td>Programming Languages and Paradigms</td>
</tr>
<tr>
<td>COMP 310</td>
<td>3</td>
<td>Operating Systems</td>
</tr>
<tr>
<td>COMP 330</td>
<td>3</td>
<td>Theoretical Aspects: Computer Science</td>
</tr>
<tr>
<td>COMP 362</td>
<td>3</td>
<td>Honours Algorithm Design</td>
</tr>
<tr>
<td>MATH 235</td>
<td>3</td>
<td>Algebra 1</td>
</tr>
<tr>
<td>MATH 242</td>
<td>3</td>
<td>Analysis 1</td>
</tr>
<tr>
<td>MATH 248</td>
<td>3</td>
<td>Honours Advanced Calculus</td>
</tr>
<tr>
<td>MATH 251</td>
<td>3</td>
<td>Honours Algebra 2</td>
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<tr>
<td>MATH 255</td>
<td>3</td>
<td>Honours Analysis 2</td>
</tr>
<tr>
<td>MATH 350</td>
<td>3</td>
<td>Graph Theory and Combinatorics</td>
</tr>
<tr>
<td>MATH 248</td>
<td>3</td>
<td>Honours Advanced Calculus</td>
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<td>3</td>
<td>Honours Algebra 2</td>
</tr>
<tr>
<td>MATH 255</td>
<td>3</td>
<td>Honours Analysis 2</td>
</tr>
<tr>
<td>MATH 350</td>
<td>3</td>
<td>Graph Theory and Combinatorics</td>
</tr>
</tbody>
</table>

Complementary Courses (30 credits)

18 credits in Mathematics, at least 12 credits selected from:

* Students with appropriate background in probability may substitute MATH 587 for MATH 356 and must then also register for MATH 355.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 354</td>
<td>3</td>
<td>Honours Analysis 3</td>
</tr>
<tr>
<td>MATH 355</td>
<td>3</td>
<td>Honours Analysis 4</td>
</tr>
<tr>
<td>MATH 356*</td>
<td>3</td>
<td>Honours Probability</td>
</tr>
<tr>
<td>MATH 370</td>
<td>3</td>
<td>Honours Algebra 3</td>
</tr>
<tr>
<td>MATH 371</td>
<td>3</td>
<td>Honours Algebra 4</td>
</tr>
<tr>
<td>MATH 387</td>
<td>3</td>
<td>Honours Numerical Analysis</td>
</tr>
</tbody>
</table>

The remaining credits should be selected from honours courses given by the Department of Mathematics and Statistics.

12 credits in Computer Science, selected from Computer Science courses at the 300 level or above excluding COMP 364, COMP 396 and COMP 431. ECSE 508 may also be taken.

12.14.21.16 Bachelor of Science (B.Sc.) - Honours Statistics and Computer Science (79 credits)

This is a challenging program providing students with a solid training in both computer science and statistics suitable for entry into graduate school in either discipline.

Students may complete this program with a minimum of 76 credits or a maximum of 79 credits depending on whether or not they are exempt from taking COMP 202.

Program Prerequisites

Students entering the Joint Honours in Statistics and Computer Science are normally expected to have completed the courses below or their equivalents. Otherwise, they will be required to make up any deficiencies in these courses over and above the 76-79 credits of courses in the program.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
</tbody>
</table>

**Required Courses (49 credits)**

* Students who have sufficient knowledge in a programming language are not required to take COMP 202.

** Students take either MATH 251 or MATH 247, but not both.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 202*</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>COMP 206</td>
<td>3</td>
<td>Introduction to Software Systems</td>
</tr>
<tr>
<td>COMP 250</td>
<td>3</td>
<td>Introduction to Computer Science</td>
</tr>
<tr>
<td>COMP 252</td>
<td>3</td>
<td>Algorithms and Data Structures</td>
</tr>
<tr>
<td>COMP 273</td>
<td>3</td>
<td>Introduction to Computer Systems</td>
</tr>
<tr>
<td>COMP 302</td>
<td>3</td>
<td>Programming Languages and Paradigms</td>
</tr>
<tr>
<td>COMP 330</td>
<td>3</td>
<td>Theoretical Aspects: Computer Science</td>
</tr>
<tr>
<td>COMP 362</td>
<td>3</td>
<td>Honours Algorithm Design</td>
</tr>
<tr>
<td>MATH 235</td>
<td>3</td>
<td>Algebra 1</td>
</tr>
<tr>
<td>MATH 242</td>
<td>3</td>
<td>Analysis 1</td>
</tr>
<tr>
<td>MATH 247**</td>
<td>3</td>
<td>Honours Applied Linear Algebra</td>
</tr>
<tr>
<td>MATH 248</td>
<td>3</td>
<td>Honours Advanced Calculus</td>
</tr>
<tr>
<td>MATH 251**</td>
<td>3</td>
<td>Honours Algebra 2</td>
</tr>
<tr>
<td>MATH 255</td>
<td>3</td>
<td>Honours Analysis 2</td>
</tr>
<tr>
<td>MATH 356</td>
<td>3</td>
<td>Honours Probability</td>
</tr>
<tr>
<td>MATH 357</td>
<td>3</td>
<td>Honours Statistics</td>
</tr>
<tr>
<td>MATH 533</td>
<td>4</td>
<td>Honours Regression and Analysis of Variance</td>
</tr>
</tbody>
</table>

**Complementary Courses (30 credits)**

15 credits in Mathematics selected as follows:

3 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 387</td>
<td>3</td>
<td>Honours Numerical Analysis</td>
</tr>
<tr>
<td>MATH 397</td>
<td>3</td>
<td>Honours Matrix Numerical Analysis</td>
</tr>
</tbody>
</table>

At least 8 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 523</td>
<td>4</td>
<td>Generalized Linear Models</td>
</tr>
<tr>
<td>MATH 524</td>
<td>4</td>
<td>Nonparametric Statistics</td>
</tr>
<tr>
<td>MATH 525</td>
<td>4</td>
<td>Sampling Theory and Applications</td>
</tr>
<tr>
<td>MATH 556</td>
<td>4</td>
<td>Mathematical Statistics 1</td>
</tr>
<tr>
<td>MATH 557</td>
<td>4</td>
<td>Mathematical Statistics 2</td>
</tr>
</tbody>
</table>

The remaining Mathematics credits selected from:

** MATH 578 and COMP 540 cannot both be taken for program credit.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 350</td>
<td>3</td>
<td>Graph Theory and Combinatorics</td>
</tr>
</tbody>
</table>
MATH 352 (1) Problem Seminar
MATH 354 (3) Honours Analysis 3
MATH 355 (3) Honours Analysis 4
MATH 578** (4) Numerical Analysis 1

15 credits in Computer Science selected as follows:

At least 6 credits selected from:

COMP 423 (3) Data Compression
COMP 424 (3) Artificial Intelligence
COMP 462 (3) Computational Biology Methods
COMP 490 (3) Introduction to Probabilistic Analysis of Algorithms
COMP 526 (3) Probabilistic Reasoning and AI
COMP 540** (3) Matrix Computations
COMP 547 (4) Cryptography and Data Security
COMP 552 (4) Combinatorial Optimization
COMP 564 (3) Computational Gene Regulation
COMP 566 (3) Discrete Optimization 1
COMP 567 (3) Discrete Optimization 2

The remaining Computer Science credits are selected from COMP courses at the 300 level or above excluding COMP 396 and COMP 431.

12.14.17 Mathematics and Statistics (MATH) Related Programs

12.14.17.1 Joint Major in Biology and Mathematics
For more information, see section 12.14.5: Biology (BIOL) > section 12.14.10: Bachelor of Science (B.Sc.) - Major Biology and Mathematics (76 credits).

12.14.17.2 Joint Major in Physiology and Mathematics
For more information, see section 12.14.30: Physiology (PHGY) > section 12.14.30.6: Bachelor of Science (B.Sc.) - Major Physiology and Mathematics (77 credits).

12.14.17.3 Joint Honours Program in Mathematics and Physics
For more information, see section 12.14.29: Physics (PHYS) > section 12.14.29.13: Bachelor of Science (B.Sc.) - Honours Mathematics and Physics (81 credits).

12.14.22 Microbiology and Immunology (MIMM)

12.14.22.1 Location
Lyman Duff Medical Sciences Building, Room 511
3775 University Street
Montreal, Quebec H3A 2B4

Telephone: 514-398-3915
Fax: 514-398-7052
Email: office.microimm@mcgill.ca
Website: www.mcgill.ca/microimm

12.14.22.2 About Microbiology and Immunology
Microbiology is the study of microorganisms such as bacteria, viruses, unicellular eukaryotes, and parasites. Microorganisms play an important role in human and animal disease, food production (bread, cheese, wine), decay and spoilage, contamination and purification of water and soil. Microbiologists study these tiny, self-replicating machines to understand the basic principles of life: growth, metabolism, cell division, control of gene expression, response to environmental...
studies. Microbiologists are also concerned with controlling or harnessing microorganisms for the benefit of people, by isolating antibiotics or producing vaccines to protect against disease, and by developing and perfecting microorganisms for industrial uses.

Immunology is the study of the molecular and cellular basis of host resistance and immunity to external agents such as pathogenic microorganisms. Immunologists study the mechanisms by which the body recognizes foreign antigens, generates appropriate antibodies to an enormously diverse spectrum of antigens, and sequesters and kills invading microorganisms. Their discoveries lead to vaccination against disease, transfusions and organ transplants, allergies, cancer, autoimmune diseases and immune-deficiency diseases such as AIDS. Antibodies may soon be used in conjunction with antibiotics or chemical agents as specific “magic bullets” to diagnose disease and attack microbes and cancers.

The disciplines of microbiology and immunology are natural partners in research, and both fields use the modern methods of cell biology, molecular biology, and genetics to study basic life processes. The members of the Department of Microbiology and Immunology perform research on microbial physiology and genetics, microbial pathogenesis, molecular virology, cellular and molecular immunology, and parasitology. Students registered in the Department therefore are exposed to these related areas and receive an excellent background in basic biology and chemistry as well as in the more applied areas of biotechnology and medicine.

Many opportunities exist for careers in basic or applied microbiology and immunology, medical microbiology, environmental microbiology, and biotechnology. They include positions in industry (pharmaceutical and biotechnology), hospitals, universities, and government (environment, public health, and energy). A degree in microbiology also provides an excellent basis for entering professional and postgraduate programs in medicine, dentistry, the veterinary sciences, research, and education.

**Notes on admission to Microbiology and Immunology programs:**

Please note that enrolment in Microbiology and Immunology programs is limited to a total of 120 students per year. Students seeking admission to the Liberal, Majors and Honours programs must have completed BIOL 112, CHEM 110, CHEM 120, MATH 139 or MATH 140, MATH 141, PHYS 101 and PHYS 102 or their equivalent with an overall average of at least B+ (75%).

Students transferring from other programs may be admitted with a B+ average up to the maximum program capacity of 120 students. Applicants not admitted will be placed on a waiting list and will be considered should vacancies occur. Application deadline for U0 or transfer students from other departments and faculties is the third Monday in April. Students who want to transfer to Microbiology and Immunology should consider taking MIMM 211, or equivalent, as a complementary course.

An undergraduate handbook, containing detailed course descriptions, a listing of faculty research interests, and information on careers in microbiology and immunology, is available from the Student Affairs Office in Room 511 of the Lyman Duff Building and at www.mcgill.ca/microimm.

All students (U1, U2, U3) must attend an advising session. Please check www.mcgill.ca/microimm for dates.

**12.14.22.3 Microbiology and Immunology (MIMM) Faculty**

**Chair**

Malcolm Baines (until June 2011) (new Chair tba)

**Professors**

Zafar Ali-Khan; B.Sc.(Bilar), M.Sc.(Karachi), Ph.D.(Tulane)
James W. Coulton; B.Sc.(Tor.), M.Sc.(Calg.), Ph.D.(W. Ont.)
John Hiscott; B.Sc., M.Sc.(W. Ont.), Ph.D.(NYU)
Greg Matlashewski; B.Sc.(C'dia), Ph.D.(Ott.)
Robert A. Murgita; B.Sc.(Maine), M.S.(Vermont), Ph.D.(McG.)
Mark A. Wainberg; B.Sc.(McG.), M.Sc., Ph.D.(Col.)

**Associate Professors**

Albert Berghuis; M.Sc.(The Netherlands), Ph.D.(Br. Col.)
Darius J. Briedis; B.A., M.D.(Johns H.)
Benoit Cousineau; B.Sc., M.Sc., Ph.D.(Montr.)
Sylvie Fournier; Ph.D.(Max Planck)
Matthias. Gotte; Ph.D.(Max Planck)
Hervé Le Moual; Ph.D.(Montr.)
Gregory T. Marcynski; B.Sc., Ph.D.(Ill.)
Martin Olivier; B.Sc.(Montr.), Ph.D.(McG.)
Ciriaco Piccirillo; B.Sc., Ph.D.(McG.)
Donald Sheppard; M.D.(Tor.)
**Assistant Professors**
Jorg Friz; Ph.D.(Vienna)
Samantha Gruenheid; B.Sc.(Br. Col.), Ph.D.(McG.)

**Associate Members**
Institute of Parasitology: Florence Dziersinski, Armando Jardim, Paula Ribeiro
Microbiology & Immunology: Lawrence Kleiman
Medicine: Marcel Behr, Ines Colmegna, Andre Dascal, Sabah Hussain, Arnold Kristof, Chen Liang, Vivian Loo, Amee Manges, Mark A. Miller, Jay Nadeau, Marianna Newkirk, Kostas Pantopoulos, Joyce E. Rauch, Michael Reed, Maya Saleh, Christos Tsoukas, Bernard Turcotte, Brian J. Ward, Ji Zhang
Neuroimmunology: Amit Bar-Or
Neurology & Neurosurgery: Jack Antel
Oncology: Anne Gatignol, Antonis E. Koromilas, Andrew Mouland, Stephane Richard
Ophthalmology: Miguel Burnier
Surgery: Nicolas V. Christou

**Adjunct Professors**
Jacques Archambault; B.Sc.(Montr), Ph.D.(Tor.)
Vibhuti Dave; M.Sc., Ph.D.(Bombay)
Albert Descoteaux; B.Sc., M.Sc.(Montr.), Ph.D.(McG.)
Peter Lau; Ph.D.(Ott.)
Byong Lee; B.Sc.(Kangwon), M.Sc., Ph.D.(Laval)
Shan-Lu Liu; Ph.D.(Wash.)
Andrew Makrigiannis; B.Sc., Ph.D.(Dal.)
Yael Mamane; B.Sc., Ph.D.(McG.)
Woong-Kyung Suh; B.Sc., M.Sc.(Seoul), Ph.D.(Tor.)
Dan Ziberstein; B.Sc., M.Sc., Ph.D.(Hebrew)

**Affiliated Centre**
Centre for Host Resistance
Montreal General Hospital
1650 Cedar Avenue
Montreal, Quebec H3G 1A4
Telephone: 514-398-8038
Director: E. Skamene

**12.14.22.4 Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Microbiology and Immunology (48 credits)**

**U1 Required Courses (15 credits)**
* Students who have taken CHEM 212 in CEGEP are exempt and must replace these credits with an elective course(s).

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 200</td>
<td>3</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 212*</td>
<td>4</td>
</tr>
<tr>
<td>MIMM 211</td>
<td>3</td>
</tr>
<tr>
<td>MIMM 212</td>
<td>2</td>
</tr>
</tbody>
</table>

* Molecular Biology
* Basic Genetics
* Introductory Organic Chemistry 1
* Introductory Microbiology
* Laboratory in Microbiology
U1 Complementary Course (3 credits)
3 credits, select one from:
- BIOC 212 (3) Molecular Mechanisms of Cell Function
- BIOL 201 (3) Cell Biology and Metabolism

U1, U2 or U3 Required Course (3 credits)
3 credits, select one from:
- BIOL 373 (3) Biometry
- MATH 203 (3) Principles of Statistics 1
- PSYC 204 (3) Introduction to Psychological Statistics

U2 Required Courses (15 credits)
- MIMM 314 (3) Immunology
- MIMM 323 (3) Microbial Physiology
- MIMM 324 (3) Fundamental Virology
- MIMM 386D1 (3) Laboratory in Microbiology and Immunology
- MIMM 386D2 (3) Laboratory in Microbiology and Immunology

U3 Complementary Courses (6 credits)
6 credits selected from:
- MIMM 387 (3) Applied Microbiology and Immunology
- MIMM 413 (3) Parasitology
- MIMM 414 (3) Advanced Immunology
- MIMM 465 (3) Bacterial Pathogenesis
- MIMM 466 (3) Viral Pathogenesis
- MIMM 509 (3) Inflammatory Processes

U1, U2 or U3 Complementary Courses (6 credits)
6 credits selected from:
Students may take either ANAT 458 or BIOC 458, but not both.
Students may take either CHEM 203 or CHEM 204, but not both.
** Students who have taken CHEM 212 or CHEM 222 in CEGEP must replace it with another complementary course.
- ANAT 261 (4) Introduction to Dynamic Histology
- ANAT 262 (3) Introductory Molecular and Cell Biology
- ANAT 365 (3) Cellular Trafficking
- ANAT 458 (3) Membranes and Cellular Signaling
- BIOC 311 (3) Metabolic Biochemistry
- BIOC 312 (3) Biochemistry of Macromolecules
- BIOC 450 (3) Protein Structure and Function
- BIOC 454 (3) Nucleic Acids
- BIOC 458 (3) Membranes and Cellular Signaling
- BIOL 300 (3) Molecular Biology of the Gene
Molecular Biology of Oncogenes (3) BIOL 314
Selected Topics in Biotechnology (3) BIOT 505
Survey of Physical Chemistry (3) CHEM 203
Physical Chemistry/Biological Sciences 1 (3) CHEM 204
Introductory Organic Chemistry 2 (4) CHEM 222**
Introductory Organic Chemistry 3 (3) CHEM 302
Biology of Cancer (3) EXMD 504
Applied Microbiology and Immunology (3) MIMM 387
Parasitology (3) MIMM 413
Advanced Immunology (3) MIMM 414
Bacterial Pathogenesis (3) MIMM 465
Viral Pathogenesis (3) MIMM 466
Inflammatory Processes (3) MIMM 509
Human Disease (3) PATH 300
Drug Action (3) PHAR 300
Drugs and Disease (3) PHAR 301
Mammalian Physiology 1 (3) PHGY 209
Mammalian Physiology 2 (3) PHGY 210

12.14.22.5 Bachelor of Science (B.Sc.) - Major Microbiology and Immunology (67 credits)

The Major program is designed for students who want to acquire a substantial background in microbiology and immunology and related disciplines (chemistry, biology, biochemistry) which will prepare them for professional schools, graduate education, or entry into jobs in industry or research institutes.

U1 Required Courses (25 credits)

* Students who have taken CHEM 212 in CEGEP are exempt and must replace these credits with an elective course(s).
** Students who have taken CHEM 222 in CEGEP are exempt and must replace these credits with an elective course(s).

- BIOL 200 (3) Molecular Biology
- BIOL 202 (3) Basic Genetics
- CHEM 212* (4) Introductory Organic Chemistry 1
- CHEM 222** (4) Introductory Organic Chemistry 2
- MIMM 211 (3) Introductory Microbiology
- MIMM 212 (2) Laboratory in Microbiology

One of:
- BIOL 201 (3) Cell Biology and Metabolism
- BIOC 212 (3) Molecular Mechanisms of Cell Function

One of:
- CHEM 203 (3) Survey of Physical Chemistry
- CHEM 204 (3) Physical Chemistry/Biological Sciences 1

U1, U2 or U3 Required Course (3 credits)
One of:
Biol 373  (3)  Biometry
Math 203  (3)  Principles of Statistics 1
Psyc 204  (3)  Introduction to Psychological Statistics

U2 Required Courses (21 credits)
Biol 311  (3)  Metabolic Biochemistry
Biol 312  (3)  Biochemistry of Macromolecules
Mimm 314  (3)  Immunology
Mimm 323  (3)  Microbial Physiology
Mimm 324  (3)  Fundamental Virology
Mimm 386D1  (3)  Laboratory in Microbiology and Immunology
Mimm 386D2  (3)  Laboratory in Microbiology and Immunology

U3 Required Courses (9 credits)
Mimm 413  (3)  Parasitology
Mimm 465  (3)  Bacterial Pathogenesis
Mimm 466  (3)  Viral Pathogenesis

Complementary Courses (9 credits)
9 credits selected from:
* Students may select either Anat 458 or Biol 458, but not both.
Anat 261  (4)  Introduction to Dynamic Histology
Anat 262  (3)  Introductory Molecular and Cell Biology
Anat 365  (3)  Cellular Trafficking
Anat 458*  (3)  Membranes and Cellular Signaling
Biol 450  (3)  Protein Structure and Function
Biol 454  (3)  Nucleic Acids
Biol 458*  (3)  Membranes and Cellular Signaling
Biol 300  (3)  Molecular Biology of the Gene
Biol 314  (3)  Molecular Biology of Oncogenes
Biot 505  (3)  Selected Topics in Biotechnology
Chem 302  (3)  Introductory Organic Chemistry 3
Exmd 504  (3)  Biology of Cancer
Mimm 387  (3)  Applied Microbiology and Immunology
Mimm 414  (3)  Advanced Immunology
Mimm 509  (3)  Inflammatory Processes
Path 300  (3)  Human Disease
Phar 300  (3)  Drug Action
Phar 301  (3)  Drugs and Disease
Phgy 209  (3)  Mammalian Physiology 1
Phgy 210  (3)  Mammalian Physiology 2
The Honours program is designed to offer, in addition to the substantial background given by the Major program, a significant research experience in a laboratory within the Department during the U3 year. Students are prepared for this independent research project by following an advanced laboratory course in U2. This program is intended to prepare students for graduate study in microbiology and immunology or related fields, but could also be chosen by students intending to enter medical research after medical school, or intending to enter the job market in a laboratory research environment.

Students intending to apply to Honours must follow the Major program in U1 and U2 and must obtain a CGPA of at least 3.50 at the end of their U2 year. For graduation in Honours, students must pass all required courses with a C or better, and achieve a sessional GPA of at least 3.30 in the U3 year.

### U1 Required Courses (25 credits)

- **BIOL 200** (3) Molecular Biology
- **BIOL 202** (3) Basic Genetics
- **CHEM 212** (4) Introductory Organic Chemistry 1
- **CHEM 222** (4) Introductory Organic Chemistry 2
- **MIMM 211** (3) Introductory Microbiology
- **MIMM 212** (2) Laboratory in Microbiology

One of:
- **BIOC 212** (3) Molecular Mechanisms of Cell Function
- **BIOL 201** (3) Cell Biology and Metabolism

One of:
- **CHEM 203** (3) Survey of Physical Chemistry
- **CHEM 204** (3) Physical Chemistry/Biological Sciences 1

### U1, U2 or U3 Required Course (3 credits)

One of:
- **BIOL 373** (3) Biometry
- **MATH 203** (3) Principles of Statistics 1
- **PSYC 204** (3) Introduction to Psychological Statistics

### U2 Required Courses (21 credits)

- **BIOC 311** (3) Metabolic Biochemistry
- **BIOC 312** (3) Biochemistry of Macromolecules
- **MIMM 314** (3) Immunology
- **MIMM 323** (3) Microbial Physiology
- **MIMM 324** (3) Fundamental Virology
- **MIMM 386D1** (3) Laboratory in Microbiology and Immunology
- **MIMM 386D2** (3) Laboratory in Microbiology and Immunology
U3 Required Courses (21 credits)

- MIMM 413 (3) Parasitology
- MIMM 465 (3) Bacterial Pathogenesis
- MIMM 466 (3) Viral Pathogenesis
- MIMM 502D1 (6) Honours Research Project in Microbiology
- MIMM 502D2 (6) Honours Research Project in Microbiology

Complementary Course (3 credits)

3 credits selected from:

- ANAT 458 (3) Membranes and Cellular Signaling
- BIOC 404 (3) Biophysical Chemistry
- BIOC 450 (3) Protein Structure and Function
- BIOC 454 (3) Nucleic Acids
- BIOC 458 (3) Membranes and Cellular Signaling
- BIOL 520 (3) Gene Activity in Development
- BIOT 505 (3) Selected Topics in Biotechnology
- MIMM 414 (3) Advanced Immunology
- MIMM 509 (3) Inflammatory Processes
- PHAR 562 (3) General Pharmacology 1
- PHAR 563 (3) General Pharmacology 2
- PSYT 455 (3) Neurochemistry

Revision, August 2011. End of revision.

12.14.22.7 Microbiology and Immunology (MIMM) Related Programs

12.14.22.7.1 Interdepartmental Honours in Immunology

For more information, see section 12.14.17: Immunology Interdepartmental Honours.

This program is offered by the departments of Biochemistry, Microbiology and Immunology, and Physiology.

Students interested in immunology may choose between this Honours program and the Honours program of the Department of Microbiology and Immunology.

Details of this program may also be obtained from Professor Piccirillo in the Department of Microbiology and Immunology, Room L11.132, Montreal General Hospital; Telephone: 514-934-1934 ext. 45135; ciro.piccirillo@mcgill.ca.

12.14.23 Music

12.14.23.1 Location

- Strathcona Music Building
- 555 Sherbrooke Street West
- Montreal, Quebec H3A 1E3

- Telephone: 514-398-4535
- Fax: 514-398-8061
- Website: www.mcgill.ca/music

12.14.23.2 About Music

For more information, see Schulich School of Music.
12.14.23.3 Music Faculty

Department of Music Research Chair
Lloyd Whitesell

Department of Performance Chair
Jean Lesage

Adviser (B.A./B.Sc. Music programs)
B. Minorgan
Telephone: 514-398-4535 ext. 6333

12.14.23.4 Music Related Programs

12.14.23.4.1 Minor in Musical Applications of Technology and Minor in Musical Science and Technology

Science students may apply for admission to either the Minor in Musical Applications of Technology, see Schulich School of Music > Minor in Musical Applications of Technology, or the Minor in Musical Science and Technology, see Schulich School of Music > Minor in Musical Science and Technology. Enrolment in Music Technology programs is highly restricted. Application forms will be available from the Department of Music Research in the Schulich School of Music from February 1 and must be completed and returned to that office by May 15 of each academic year. Late applications will not be accepted and no students will be admitted in January. Successful applicants will be notified by June 1. Registration will be limited to available lab space.

12.14.23.4.1.1 Science Minor in Music Technology (24 credits)

This program was retired as of the 2008-09 academic year. Students currently registered in the program should consult with their program adviser and refer to the Calendar for the academic year in which they began the program for guidance about program requirements. Science students are eligible to take the Arts Minor Concentration in Music; see Faculty of Arts > Music (MUAR). Music courses listed as MUAR (see Faculty of Arts courses) are considered to be Arts courses. All other Music courses are considered by the Faculty of Science to be courses outside of Arts and Science (see section 12.7.5.2: Courses Outside the Faculties of Arts and Science for the relevant regulations).

12.14.24 Neurology and Neurosurgery (NEUR)

12.14.24.1 Location
Montreal Neurological Institute and Hospital
3801 University Street, Room 141
Montreal, Quebec H3A 2B4

12.14.24.2 About Neurology and Neurosurgery
There are no B.Sc. programs in Neurology and Neurosurgery, but the course NEUR 310 Cellular Neurobiology, which is part of the Minor in Neuroscience, is a course taught by the Faculty of Science.

12.14.25 Neuroscience

12.14.25.1 Location
Director of Neuroscience
Professor Monroe Cohen
Department of Physiology
McIntyre Medical Sciences Building, Room 1150
3655 Promenade Sir-William-Osler
Montreal, Quebec H3G 1Y6

Interdisciplinary Programs Adviser
Ryan Bouma, Interim Adviser
Email: ryan.bouma@mcgill.ca
Interdisciplinary Programs Adviser

Telephone: 514-398-7330
Website: www.mcgill.ca/neuroscience

12.14.25.2 About Neuroscience

Neuroscience is a multidisciplinary science devoted to the understanding of the nervous system. The brain is one of the most complex systems in the universe, and understanding how it functions is among the most challenging questions in science. Scientists are investigating the brain at many levels, from the molecules at synapses to complex forms of behaviour, and use methods of inquiry that are drawn from a number of disciplines, including molecular and cellular biology, physiology, behavioural sciences and cognitive psychology, computer science and artificial intelligence. In addition, scientists are investigating the nervous system of many different animals, from simple invertebrates to humans. These wide-ranging investigations are providing a clearer understanding of how neurons work; how they communicate with one another; how they are organized into local or distributed networks; how the connections between neurons are established and change with experience; how neuronal function is influenced by pharmacological agents, and during disease states. As a result, we are gaining deeper insights into the neural basis of mental activity, as well as developing new therapeutic approaches to alleviate neurological and psychological diseases.

Please note: New students are required to attend an information session held at the end of August. Please consult the neuroscience website in early August for the date and location.

12.14.25.3 Bachelor of Science (B.Sc.) - Minor Neuroscience (24 credits)

Revision, August 2011. Start of revision.

The Minor is composed of 24 credits, 18 of which must be selected from two of the five topic areas listed below. Twelve credits of the 18 must be at the 400 or 500 level and from two different departments. A maximum of 6 credits can be counted both for the student's primary program and for the Minor Neuroscience, where appropriate. A maximum of 6 credits can be counted from the student's home department.

All course selections for the Minor Neuroscience must be approved by an adviser. Contact Ryan Bouma at ryan.bouma@mcgill.ca.

Complementary Courses (24 credits)

6 credits selected from:

* Students may select one of NSCI 201 or BIOL 306 or PHGY 311.

ANAT 321 (3) Circuitry of the Human Brain
BIOL 306* (3) Neural Basis of Behaviour
NEUR 310 (3) Cellular Neurobiology
NSCI 201* (3) Introduction to Neuroscience 2
PHGY 311* (3) Channels, Synapses & Hormones

18 additional credits:

9 credits each from two of the five areas listed below, 6 credits in each area must be from 400- or 500-level courses.

Neurobiology and Behaviour

BIOL 306 (3) Neural Basis of Behaviour
BIOL 389 (3) Laboratory in Neurobiology
BIOL 514 (3) Neurobiology Learning and Memory
BIOL 530 (3) Advances in Neuroethology
PHGY 311 (3) Channels, Synapses & Hormones
PHGY 556 (3) Topics in Systems Neuroscience
PSYC 302 (3) The Psychology of Pain
PSYC 318 (3) Behavioural Neuroscience 2
PSYC 427 (3) Sensorimotor Behaviour
PSYC 522 (3) Neurochemistry and Behaviour
PSYT 500 (3) Advances: Neurobiology of Mental Disorders

Molecular and Developmental Neurobiology
ANAT 321 (3) Circuitry of the Human Brain
BIOL 532 (3) Developmental Neurobiology Seminar
BIOL 588 (3) Advances in Molecular/Cellular Neurobiology
NEUR 310 (3) Cellular Neurobiology
PHGY 311 (3) Channels, Synapses & Hormones
PHGY 451 (3) Advanced Neurophysiology
PSYT 455 (3) Neurochemistry

Neurophysiology
ANAT 322 (3) Neuroendocrinology
BIOL 389 (3) Laboratory in Neurobiology
BIOL 514 (3) Neurobiology Learning and Memory
BIOL 588 (3) Advances in Molecular/Cellular Neurobiology
PHGY 311 (3) Channels, Synapses & Hormones
PHGY 451 (3) Advanced Neurophysiology
PHGY 520 (3) Ion Channels
PHGY 556 (3) Topics in Systems Neuroscience
PSYC 427 (3) Sensorimotor Behaviour

Neuropsychology
ANAT 321 (3) Circuitry of the Human Brain
ANAT 322 (3) Neuroendocrinology
BIOL 306 (3) Neural Basis of Behaviour
PSYC 302 (3) The Psychology of Pain
PSYC 311 (3) Human Cognition and the Brain
PSYC 318 (3) Behavioural Neuroscience 2
PSYC 410 (3) Special Topics in Neuropsychology
PSYC 470 (3) Memory and Brain
PSYC 522 (3) Neurochemistry and Behaviour
PSYC 526 (3) Advances in Visual Perception

Neuropharmacology
ANAT 321 (3) Circuitry of the Human Brain
BIOL 588 (3) Advances in Molecular/Cellular Neurobiology
PHAR 300 (3) Drug Action
PHAR 301 (3) Drugs and Disease
PHAR 562 (3) General Pharmacology 1
PHGY 311 (3) Channels, Synapses & Hormones
Bachelor of Science (B.Sc.) - Major Neuroscience (65 credits)

Revision, August 2011. Start of revision.

The Major program in Neuroscience is a focused program for students interested in how the nervous system functions. It is highly interdisciplinary and borrows principles and methodologies from a number of fields including: biology, biochemistry, physiology, psychology, as well as mathematics, physics, computer science, and immunology. To ensure that students have the appropriate foundation, they are required to take 29 credits in lower-level courses from physiology, biology, mathematics, computer science, psychology, and ethics. While flexible, the program offers students a concentrated selection of 15 credits to be taken from one of three areas of current scientific activities in the neurosciences: Cell/Molecular, Neurophysiology/Computation, or Cognition/Behaviour. In addition, students select 21 credits from a wide array of upper-level complementary courses to obtain more specialized training in areas of neuroscience that best suit their interest.

All course selections for the Major Neuroscience MUST be approved by an adviser. Contact Ryan Bouma at ryan.bouma@mcgill.ca.

Students must take a minimum of 64 credits to complete this Major.

Program Prerequisites

Notes on admission to the Neuroscience Major program: Please note that enrolment in the Neuroscience Major is limited to a total of 50 students per year. U0 students seeking admission to this program must have a minimum CGPA of 3.2 and have completed the courses listed below or equivalent.

* Students complete either MATH 139 OR MATH 140, but not both.

Core Required Courses (20 credits)

* Note: If CHEM 212 is taken prior to the start of the program, credits must be replaced with an alternative 3- or 4-credit course in the program, with approval from the Program Adviser.

Complementary Courses (45 credits)

9 core credits selected as follows:
3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 373</td>
<td>3</td>
<td>Biometry</td>
</tr>
<tr>
<td>PSYC 305</td>
<td>3</td>
<td>Statistics for Experimental Design</td>
</tr>
</tbody>
</table>

3 credits completed by taking the course below or an equivalent in Computer Science.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 202</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
</tbody>
</table>

3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 309</td>
<td>3</td>
<td>Mathematical Models in Biology</td>
</tr>
<tr>
<td>MATH 222**</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
</tbody>
</table>

** Note: Students who have successfully completed an equivalent to MATH 222 at CEGEP or elsewhere, may substitute another 3-credit course for MATH 222.

Streams

15 credits selected from one of the following streams:

A. Cell and Molecular Stream

15 credits selected as follows:

* Students take either BIOL 201 OR BIOC 212, but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOC 212*</td>
<td>3</td>
<td>Molecular Mechanisms of Cell Function</td>
</tr>
<tr>
<td>BIOC 311</td>
<td>3</td>
<td>Metabolic Biochemistry</td>
</tr>
<tr>
<td>BIOL 201*</td>
<td>3</td>
<td>Cell Biology and Metabolism</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>3</td>
<td>Basic Genetics</td>
</tr>
<tr>
<td>MIMM 314</td>
<td>3</td>
<td>Immunology</td>
</tr>
<tr>
<td>PHGY 311</td>
<td>3</td>
<td>Channels, Synapses &amp; Hormones</td>
</tr>
</tbody>
</table>

B. Neurophysiology/Neural Computation Stream

15 credits selected as follows:

9 credits from:

* Students take either BIOL 201 OR BIOC 212, but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 321</td>
<td>3</td>
<td>Circuitry of the Human Brain</td>
</tr>
<tr>
<td>BIOC 212*</td>
<td>3</td>
<td>Molecular Mechanisms of Cell Function</td>
</tr>
<tr>
<td>BIOL 201*</td>
<td>3</td>
<td>Cell Biology and Metabolism</td>
</tr>
<tr>
<td>PHGY 311</td>
<td>3</td>
<td>Channels, Synapses &amp; Hormones</td>
</tr>
</tbody>
</table>

3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 306</td>
<td>3</td>
<td>Neural Basis of Behaviour</td>
</tr>
<tr>
<td>PHGY 314</td>
<td>3</td>
<td>Integrative Neuroscience</td>
</tr>
</tbody>
</table>
3 credits from:

- BIOL 309 (3) Mathematical Models in Biology
- COMP 206 (3) Introduction to Software Systems
- MATH 222** (3) Calculus 3

** Note: Students who have successfully completed an equivalent to MATH 222 at CEGEP or elsewhere, may substitute another 3-credit course for MATH 222.

C. Cognitive/Behavioural Stream

15 credits selected as follows:

12 credits as follows:

* Students take either BIOL 306 OR PHGY 314, but not both.

- ANAT 321 (3) Circuitry of the Human Brain
- BIOL 306* (3) Neural Basis of Behaviour
- PHGY 314* (3) Integrative Neuroscience
- PSYC 213 (3) Cognition
- PSYC 318 (3) Behavioural Neuroscience 2

and 3 credits from:

- LING 390 (3) Neuroscience of Language
- PSYC 317 (3) Genes and Behaviour
- PSYC 342 (3) Hormones and Behaviour

Other Complementary Courses

(21-23 credits)

3-16 credits from:

- BIOL 301 (4) Cell and Molecular Laboratory
- BIOL 389 (3) Laboratory in Neurobiology
- NSCI 410 (6) Independent Research 1
- NSCI 420D1 (4.5) Independent Research 2
- NSCI 420D2 (4.5) Independent Research 2

The remainder of the credits should be taken from the following lists. At least 15 of the 21-23 credits must be at the 400 or 500 level, which could include the above NSCI 410 or NSCI 420D1/D2 research courses:

200- and 300-level courses:

* Students take either BIOL 201 OR BIOC 212, but not both.

** COMP 206 or equivalent 300- or 400-level Computer Science course.

- BIOC 212* (3) Molecular Mechanisms of Cell Function
- BIOC 311 (3) Metabolic Biochemistry
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 201*</td>
<td>3</td>
<td>Cell Biology and Metabolism</td>
</tr>
<tr>
<td>BIOL 300</td>
<td>3</td>
<td>Molecular Biology of the Gene</td>
</tr>
<tr>
<td>BIOL 306</td>
<td>3</td>
<td>Neural Basis of Behaviour</td>
</tr>
<tr>
<td>CHEM 222</td>
<td>4</td>
<td>Introductory Organic Chemistry 2</td>
</tr>
<tr>
<td>COMP 206**</td>
<td>3</td>
<td>Introduction to Software Systems</td>
</tr>
<tr>
<td>LING 390</td>
<td>3</td>
<td>Neuroscience of Language</td>
</tr>
<tr>
<td>MATH 315</td>
<td>3</td>
<td>Ordinary Differential Equations</td>
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<tr>
<td>MATH 323</td>
<td>3</td>
<td>Probability</td>
</tr>
<tr>
<td>MATH 324</td>
<td>3</td>
<td>Statistics</td>
</tr>
<tr>
<td>MIMM 314</td>
<td>3</td>
<td>Immunology</td>
</tr>
<tr>
<td>NEUR 310</td>
<td>3</td>
<td>Cellular Neurobiology</td>
</tr>
<tr>
<td>PHGY 311</td>
<td>3</td>
<td>Channels, Synapses &amp; Hormones</td>
</tr>
<tr>
<td>PHGY 314</td>
<td>3</td>
<td>Integrative Neuroscience</td>
</tr>
<tr>
<td>PSYC 302</td>
<td>3</td>
<td>The Psychology of Pain</td>
</tr>
<tr>
<td>PSYC 315</td>
<td>3</td>
<td>Computational Psychology</td>
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<tr>
<td>PSYC 317</td>
<td>3</td>
<td>Genes and Behaviour</td>
</tr>
<tr>
<td>PSYC 318</td>
<td>3</td>
<td>Behavioural Neuroscience 2</td>
</tr>
<tr>
<td>PSYC 342</td>
<td>3</td>
<td>Hormones and Behaviour</td>
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</table>

400- and 500-level courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 514</td>
<td>3</td>
<td>Neurobiology Learning and Memory</td>
</tr>
<tr>
<td>BIOL 530</td>
<td>3</td>
<td>Advances in Neuroethology</td>
</tr>
<tr>
<td>BIOL 532</td>
<td>3</td>
<td>Developmental Neurobiology Seminar</td>
</tr>
<tr>
<td>BIOL 588</td>
<td>3</td>
<td>Advances in Molecular/Cellular Neurobiology</td>
</tr>
<tr>
<td>BMDE 519</td>
<td>3</td>
<td>Biomedical Signals and Systems</td>
</tr>
<tr>
<td>MATH 437*</td>
<td>3</td>
<td>Mathematical Methods in Biology</td>
</tr>
<tr>
<td>MIMM 414</td>
<td>3</td>
<td>Advanced Immunology</td>
</tr>
<tr>
<td>MIMM 509</td>
<td>3</td>
<td>Inflammatory Processes</td>
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<tr>
<td>NEUR 550</td>
<td>3</td>
<td>Free Radical Biomedicine</td>
</tr>
<tr>
<td>PHGY 425</td>
<td>3</td>
<td>Analyzing Physiological Systems</td>
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<tr>
<td>PHGY 451</td>
<td>3</td>
<td>Advanced Neurophysiology</td>
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<tr>
<td>PHGY 513</td>
<td>3</td>
<td>Cellular Immunology</td>
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<tr>
<td>PHGY 520</td>
<td>3</td>
<td>Ion Channels</td>
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<tr>
<td>PHGY 556</td>
<td>3</td>
<td>Topics in Systems Neuroscience</td>
</tr>
<tr>
<td>PHYS 413*</td>
<td>3</td>
<td>Physical Basis of Physiology</td>
</tr>
<tr>
<td>PSYC 410</td>
<td>3</td>
<td>Special Topics in Neuropsychology</td>
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<tr>
<td>PSYC 427</td>
<td>3</td>
<td>Sensorimotor Behaviour</td>
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<tr>
<td>PSYC 470</td>
<td>3</td>
<td>Memory and Brain</td>
</tr>
<tr>
<td>PSYC 501</td>
<td>3</td>
<td>Auditory Perception</td>
</tr>
<tr>
<td>PSYC 502</td>
<td>3</td>
<td>Psychoneuroendocrinology</td>
</tr>
<tr>
<td>PSYC 522</td>
<td>3</td>
<td>Neurochemistry and Behaviour</td>
</tr>
<tr>
<td>PSYC 526</td>
<td>3</td>
<td>Advances in Visual Perception</td>
</tr>
</tbody>
</table>
PSYC 532 (3) Cognitive Science
PSYT 455 (3) Neurochemistry
PSYT 500 (3) Advances: Neurobiology of Mental Disorders
PSYT 505 (3) Neurobiology of Schizophrenia

* Students may select either MATH 437 OR PHYS 413, but not both.

Revision, August 2011. End of revision.

12.14.26 Nutrition (NUTR)

12.14.26.1 Location

School of Dietetics and Human Nutrition
Macdonald-Stewart Building, Room MS2-039
21,111 Lakeshore Road
Sainte-Anne-de-Bellevue, Quebec H9X 3V9


The School of Dietetics and Human Nutrition offers a Minor in Human Nutrition which can be taken by Science students; see Faculty of Agricultural and Environmental Sciences > Bachelor of Science (Nutritional Sciences) - B.Sc.(Nutr.Sc.).

NUTR 307 is considered as a course taught by the Faculty of Science and is offered simultaneously on both campuses.

12.14.27 Pathology (PATH)

12.14.27.1 Location

Department of Pathology
Duff Medical Building
3775 University Street
Montreal, Quebec H3A 2B4

12.14.27.2 About Pathology

There are no B.Sc. programs in Pathology, but the course PATH 300 Human Disease is considered as one taught by the Faculty of Science.

12.14.28 Pharmacology and Therapeutics (PHAR)

12.14.28.1 Location

McIntyre Medical Building, Room 1325
3655 Promenade Sir-William-Osler
Montreal, Quebec H3G 1Y6

Telephone: 514-398-3623
Website: www.medicine.mcgill.ca/pharma

12.14.28.2 About Pharmacology and Therapeutics

Pharmacology is the science that deals with all aspects of drugs and their interactions with living organisms. Thus, it involves the physical and chemical properties of drugs, their biochemical and physiological effects, mechanisms of action, pharmacokinetics, and therapeutic and other uses. Since the word “drug” encompasses all chemical substances that produce an effect on living cells, it is evident that pharmacology is a very extensive subject. Pharmacology is a multidisciplinary science. It has developed its own set of principles and methods to study the mode of the action of drugs, but it has also utilized many techniques and approaches from various disciplines including biochemistry, physiology, anatomy, and molecular biology, as well as others. Pharmacology encompasses a number of different areas such as pharmacogenomics, molecular biology, bioinformatics, neuropharmacology, reproductive pharmacology, endocrine pharmacology, receptor pharmacology, cardiovascular pharmacology, toxicology, developmental pharmacology, autonomic pharmacology, biochemical pharmacology, and therapeutics.
Training in pharmacology is conducted at both the undergraduate and graduate levels. Because of its breadth, students may be attracted to the subject from a variety of viewpoints; this includes those completing a Bachelor's degree in any number of basic science disciplines, such as biology, zoology, chemistry, physics, biochemistry, microbiology, anatomy, and physiology. At the undergraduate level, seven lecture courses are offered. A course involving research projects in pharmacology is also available to provide the student with the opportunity to get first-hand experience in a pharmacology research laboratory. These courses provide students with knowledge concerning the actions of drugs on living systems and insight into approaches to basic pharmacological research.

### 12.14.28.3 Pharmacology and Therapeutics (PHAR) Faculty

#### Chair
Hans H. Zingg

#### Emeritus Professors
Radan Capek; M.D., Ph.D.(Prague)
Brian Collier; B.Sc., Ph.D.(Leeds)
Theodore Sourkes; Ph.D.(C’nell)

#### Professors
Guillermina Almazan; Ph.D.(McG.)
Paul B.S. Clarke; M.A.(Cant.), Ph.D.(Lond.)
A. Claudio Cuello; M.D.(Buenos Aires), M.A., D.Sc.(Oxf.), F.R.S.C.
Barbara Hales; M.Sc.(Phil. Coll. of Pharm. and Science), Ph.D.(McG.)
Dusica Maysinger; Ph.D.(USC)
Peter J. McLeod; M.D.(Manit.), F.R.C.P.(C.)
Alfredo Ribeiro-da-Silva; M.D., Ph.D.(Oporto)
Bernard Robaire; B.A.(Calif.), Ph.D.(McG.)
H. Uri Saragovi; Ph.D.(Miami)
Moshe Szyf; M.Sc., Ph.D.(Hebrew)
Jacqueta Trasler; M.D.,C.M., Ph.D.(McG.)
Daya R. Varma; M.D.(Lucknow), Ph.D.(McG.)
Hans H. Zingg; M.D., Ph.D.(McG.)

#### Associate Professors
Daniel Bernard; Ph.D.(Johns Hop.)
Derek Bowie; B.Sc., Ph.D.(Lond.)
Terence Hébert; M.Sc.(Windsor), Ph.D.(Tor.)
Anne McKinney; Ph.D.(Ulster)
Stanley Nattel; B.Sc., M.D.,C.M.(McG.)
Ante L. Padien; M.D., M.Sc., D.Sc.(Zagreb)
Edith A. Zorychta; B.Sc.(St. FX), M.Sc., Ph.D.(McG.)

#### Assistant Professors
Greg Miller; Ph.D.(W. Ont.)
Jason Chaim Tanny; Ph.D.(Harv.)

#### Associate Members
Moulay Alaoui-Jamali; Ph.D.(Sorbonne)
Gerald Batist; M.D.,C.M.(McG.)
**Associate Members**

Martine Culty; Ph.D.(INSERM, Grenoble)
Giovanni Di Battista; B.Sc., Ph.D.(Montr.)
Lesley Fellows; M.D.(McG.), Ph.D.(Oxf.)
Pierre Fiset; M.D.(Laval), F.R.C.P.S.(C)
Serge Gauthier; M.D.(Montr.)
Timothy Geary; Ph.D.(Mich.)
Bertrand Jean-Claude; M.Sc.(Moncton), Ph.D.(McG.)
Sarah Kimmins; Ph.D.(Dal.)
Stephane Laporte; Ph.D.(Sher.)
Cristian O’Flaherty; Ph.D.(McG.)
Vassilios Papadopoulos; Ph.D.(Université Pierre et Marie Curie)
Roger Prichard; B.Sc., Ph.D.(N.S.W.)
Remi Quirion; M.Sc., Ph.D.(Sher.)
Simon Rousseau; Ph.D.(Laval)
Yoram Shir; M.D.(Israel), Ph.D.(Johns Hop.)
Laura Stone; Ph.D.(Minn.)
Marc Ware; M.D.(Univ. West Indies, Kingston, Jamaica)
Tak Pan Wong; Ph.D.(McG.)

**Adjunct Professors**

Bruce Allen; Ph.D.(Br. Col.)
Martin Bruno; Ph.D.(McG.)
Sylvain Chemtob; M.D.(Montr.), Ph.D.(McG.)
Jeffrey Coull; Ph.D. (McG.)
Yves De Koninck; Ph.D.(McG.)
Lorella Garofalo; Ph.D.(McG.)
Jennifer M.A. Laird; Ph.D.(Brist.)
Joseph Mancini; M.Sc., Ph.D.(McG.)
Karen Meerovitch; Ph.D.(McG.)
Thomas Sanderson; Ph.D.(Br. Col.)

**Bachelor of Science (B.Sc.) - Minor Pharmacology (24 credits)**

The Minor Pharmacology is intended for students registered in a complementary B.Sc. program who are interested in a focused introduction to specialized topics in pharmacology to prepare them for professional schools, graduate education, or entry into jobs in industry or research institutes. Students should declare their intent to enter the Minor in Pharmacology at the beginning of their U2 year. They must consult with, and obtain the approval of, the Coordinator for the Minor Program in the Department of Pharmacology and Therapeutics. (Please contact the coordinator: Dr. Terry Hébert; terence.hebert@mcgill.ca; 514-398-1398).

All courses in the Minor program must be passed with a minimum grade C or better. Generally, no more than 6 credits of overlap are permitted between the Minor and the primary program.

**Required Courses (12 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHAR 300</td>
<td>Drug Action</td>
<td>3</td>
</tr>
<tr>
<td>PHAR 301</td>
<td>Drugs and Disease</td>
<td>3</td>
</tr>
<tr>
<td>PHAR 562</td>
<td>General Pharmacology 1</td>
<td>3</td>
</tr>
</tbody>
</table>
Complementary Courses (12 credits)
12 credits selected as follows:

3 credits, one of:
- Molecular Mechanisms of Cell Function
  BIOC 212 (3)
- Molecular Biology
  BIOL 200 (3)
- Cell Biology and Metabolism
  BIOL 201 (3)

3 credits, one of:
- Mammalian Physiology 1
  PHGY 209 (3)
- Mammalian Physiology 2
  PHGY 210 (3)

6 credits, chosen from:
- Principles of Toxicology
  PHAR 303 (3)
- Drug Design and Development 1
  PHAR 503* (3)
- Drug Design and Development 2
  PHAR 504* (3)
- Pharmacology Selected Topics
  PHAR 558 (3)
- Pharmacology Research Project
  PHAR 599 (6)

* PHAR 504 can be taken with PHAR 503 only.

12.14.28.5 Bachelor of Science (B.Sc.) - Major Pharmacology (65 credits)
Revision, August 2011. Start of revision.

This program incorporates extensive studies in Pharmacology with a strong component of related biomedical sciences, providing a solid preparation for employment opportunities or for entry into graduate or professional training programs. Students must consult an adviser upon entering the program and at the beginning of U2 to verify courses and progress. Additional consultation at regular intervals is encouraged.

U1 Required Courses (22 credits)
- Molecular Biology
  BIOL 200 (3)
- Basic Genetics
  BIOL 202 (3)
- Introductory Organic Chemistry 1
  CHEM 212 (4)
- Introductory Organic Chemistry 2
  CHEM 222 (4)
- Mammalian Physiology 1
  PHGY 209 (3)
- Mammalian Physiology 2
  PHGY 210 (3)
- Introductory Physiology Laboratory 1
  PHGY 212 (1)
- Introductory Physiology Laboratory 2
  PHGY 213 (1)

U2 Required Courses (16 credits)
- Metabolic Biochemistry
  BIOC 311 (3)
- Cell and Molecular Laboratory
  BIOL 301 (4)
- Drug Action
  PHAR 300 (3)
- Drugs and Disease
  PHAR 301 (3)
PHAR 303 (3) Principles of Toxicology

**U3 Required Courses (12 credits)**

PHAR 503 (3) Drug Design and Development 1
PHAR 558 (3) Pharmacology Selected Topics
PHAR 562 (3) General Pharmacology 1
PHAR 563 (3) General Pharmacology 2

**Complementary Courses (15 credits)**

15 credits selected as follows:

3 credits selected from:
- ANAT 212 (3) Molecular Mechanisms of Cell Function
- BIOC 212 (3) Molecular Mechanisms of Cell Function
- BIOL 201 (3) Cell Biology and Metabolism

3 credits selected from:
- CHEM 203 (3) Survey of Physical Chemistry
- CHEM 204 (3) Physical Chemistry/Biological Sciences 1

3 credits selected from:
- BIOL 373 (3) Biometry
- MATH 203 (3) Principles of Statistics 1
- PSYC 204 (3) Introduction to Psychological Statistics

6 credits selected from the following upper-level science courses:

Committee approval is required to substitute an upper-level science course not in the list below.

PHAR 599D1 and PHAR 599D2 are taken together.

* Note: Students may take either ANAT 458 or BIOC 458.

** Note: Students may take either CHEM 504 or PHAR 504.

- ANAT 321 (3) Circuitry of the Human Brain
- ANAT 365 (3) Cellular Trafficking
- ANAT 458* (3) Membranes and Cellular Signaling
- BIOC 312 (3) Biochemistry of Macromolecules
- BIOC 450 (3) Protein Structure and Function
- BIOC 454 (3) Nucleic Acids
- BIOC 458* (3) Membranes and Cellular Signaling
- BIOL 300 (3) Molecular Biology of the Gene
- BIOL 303 (3) Developmental Biology
- BIOL 306 (3) Neural Basis of Behaviour
- BIOL 314 (3) Molecular Biology of Oncogenes
BIOT 505 (3)  Selected Topics in Biotechnology
CHEM 302 (3)  Introductory Organic Chemistry 3
CHEM 502 (3)  Advanced Bio-Organic Chemistry
CHEM 504** (3)  Drug Design and Development 2
EXMD 504 (3)  Biology of Cancer
EXMD 511 (3)  Joint Venturing with Industry
MIMM 314 (3)  Immunology
MIMM 387 (3)  Applied Microbiology and Immunology
MIMM 414 (3)  Advanced Immunology
NEUR 310 (3)  Cellular Neurobiology
PATH 300 (3)  Human Disease
PHAR 504** (3)  Drug Design and Development 2
PHAR 599D1 (3)  Pharmacology Research Project
PHAR 599D2 (3)  Pharmacology Research Project
PHGY 311 (3)  Channels, Synapses & Hormones
PHGY 312 (3)  Respiratory, Renal, & Cardiovascular Physiology
PHGY 313 (3)  Blood, Gastrointestinal, & Immune Systems Physiology
PHGY 314 (3)  Integrative Neuroscience
PHGY 520 (3)  Ion Channels
PSYC 311 (3)  Human Cognition and the Brain
PSYT 455 (3)  Neurochemistry

Revision, August 2011. End of revision.

12.14.28.6 Bachelor of Science (B.Sc.) - Honours Pharmacology (74 credits)
Revision, August 2011. Start of revision.

The Honours program is designed as a preparation for graduate studies and research. In addition to the strong training provided by the Major program, it requires students to have direct research experience in a chosen area during their final year of study. Acceptance into the Honours program takes place in the Winter term of U2 and requires a CGPA of 3.30. Students who wish to enter the Honours program should follow the Major program; those who satisfactorily complete the first three terms with a CGPA of at least 3.30 and a mark of B or higher in core Pharmacology courses are eligible for admission. Applications can be obtained from the office of the Department of Pharmacology in the McIntyre Medical Building or on the departmental website.

U1 Required Courses (22 credits)
* Students with prior credit for CHEM 212 may take an elective in place of this course.

BIOL 200 (3)  Molecular Biology
BIOL 202 (3)  Basic Genetics
CHEM 212* (4)  Introductory Organic Chemistry 1
CHEM 222 (4)  Introductory Organic Chemistry 2
PHGY 209 (3)  Mammalian Physiology 1
PHGY 210 (3)  Mammalian Physiology 2
PHGY 212 (1)  Introductory Physiology Laboratory 1
PHGY 213 (1)  Introductory Physiology Laboratory 2

U2 Required Courses (16 credits)

BIOC 311 (3)  Metabolic Biochemistry
BIOL 301 (4) Cell and Molecular Laboratory
PHAR 300 (3) Drug Action
PHAR 301 (3) Drugs and Disease
PHAR 303 (3) Principles of Toxicology

U3 Required Courses (18 credits)
* PHAR 599D1 and PHAR 599D2 are taken together.

PHAR 503 (3) Drug Design and Development 1
PHAR 558 (3) Pharmacology Selected Topics
PHAR 562 (3) General Pharmacology 1
PHAR 563 (3) General Pharmacology 2
PHAR 599D1* (3) Pharmacology Research Project
PHAR 599D2* (3) Pharmacology Research Project

Complementary Courses (18 credits)
18 credits selected as follows:

3 credits selected from:
ANAT 212 (3) Molecular Mechanisms of Cell Function
BIOC 212 (3) Molecular Mechanisms of Cell Function
BIOL 201 (3) Cell Biology and Metabolism

3 credits selected from:
CHEM 203 (3) Survey of Physical Chemistry
CHEM 204 (3) Physical Chemistry/Biological Sciences 1

3 credits selected from:
BIOL 373 (3) Biometry
MATH 203 (3) Principles of Statistics 1
PSYC 204 (3) Introduction to Psychological Statistics

9 credits selected from the following upper-level science courses:
Committee approval is required to substitute an upper-level science course not in the list below.

* Note: Students may take either ANAT 458 or BIOC 458.
** Note: Students may take either CHEM 504 or PHAR 504.

ANAT 321 (3) Circuitry of the Human Brain
ANAT 365 (3) Cellular Trafficking
ANAT 458* (3) Membranes and Cellular Signaling
BIOC 312 (3) Biochemistry of Macromolecules
BIOC 450 (3) Protein Structure and Function
BIOC 454 (3) Nucleic Acids
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<td>CHEM 504**</td>
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Revision, August 2011. End of revision.

12.14.29 Physics (PHYS)

12.14.29.1 Location

Rutherford Physics Building, Room 108
3600 University Street
Montreal, Quebec H3A 2T8

Telephone: 514-398-6477
Fax: 514-398-8434
Email: secretariat@physics.mcgill.ca
Website: www.physics.mcgill.ca

12.14.29.2 About Physics

Physics is in many ways the parent of the other natural sciences and its discoveries and laws continually affect their development. Its range and scope extend in space and time from subnuclear particles to the universe itself. The subfields of physics such as mechanics, thermodynamics, electricity, atomic physics, and quantum mechanics, to mention but a few, permeate all other scientific disciplines. People trained in physics are employed in industry, government, and educational systems where they find many challenges as teachers, researchers, administrators, and in the rapidly developing area of scientific business.

The two main undergraduate programs in Physics at McGill are the Honours and the Major. The Honours program is highly specialized and the courses are very demanding. This program is appropriate for students who wish to make an in-depth study of the subject in preparation for graduate work and an academic or professional career in physics. The two joint honours, one in Mathematics and Physics and the other in Physics and Chemistry, are even more specialized and demanding. They are intended for students who wish to develop a strong basis in both physics and the other discipline and are intended as preparation for graduate work and a professional or academic career. Although these two programs have a bias for theoretical work, they are broad enough and strong
enough to prepare students for further study in either experimental physics or respectively mathematics or chemistry. High standing in CEGEP or Freshman-year mathematics and physics is a requirement for admission to these honours programs.

The Major program, on the other hand, offers a broad training in classical and modern physics and yet leaves room for the student to take a meaningful sequence of courses in other areas. It is intended primarily for students who wish to pursue careers in fields for which physics provides a basis. However, this program also provides a preparation for graduate studies.

It is possible for students to transfer from the Major program to the Honours program after the first year of studies; see section 12.14.29.9: Bachelor of Science (B.Sc.) - Major Physics (60 credits).

There are also a number of other major programs: Atmospheric Sciences and Physics, Physics and Computer Science, Physics and Geophysics, and Physiology and Physics, offered jointly with other departments, and a minor program in Electrical Engineering, available only to students in the Physics Major program. In addition, there is a minor in Physics and a core Physics component of the Liberal Science program, for students less interested in a specialized education.

For those interested in a career as a high school science teacher, the concurrent program leading to both a B.Sc. and a B.Ed. degree provides several physics options. These combine physics courses from the Major and Minor programs with courses from either Biology or Chemistry and with Education courses. (For details, see section 12.14.34: Science or Mathematics for Teachers.)

Students from outside of the Province of Quebec will ordinarily register in the Science Freshman program. Physics offers two sequences of courses for this program: they are described below.

The list of pre- and corequisites is not absolute. In many cases permission of the Department may be sought to have a specific prerequisite waived. The procedure is to ask the professor in charge of the course to review the request for such a waiver. The prerequisites of the 100-level courses are described in the following section entitled Science Freshman Program.

Students interested in any of the Physics programs should contact the Department for an adviser.

A Science major concentration in Physics is available to students pursuing the B.A. & Sc. degree. This Major concentration is described in the Bachelor of Arts and Science section of this publication; see Bachelor of Arts and Science > Physics (PHYS) for details.

12.14.29.3 Internship Year in Science (IYS)

IYS is a pregraduate work experience program available to eligible students and normally taken between their U2 and U3 years. For more information, see section 12.13.1: Industrial Practicum (IP) and Internship Year in Science (IYS).

The following programs are also available with an internship component:

- Major in Physics
- Honours in Physics
- Joint Honours Program in Physics and Chemistry
- Joint Honours Program in Physics and Mathematics
- Joint Major Program in Atmospheric Science and Physics
- Joint Major Program in Physics and Computer Science
- Joint Major Program in Physics and Geophysics

12.14.29.4 Science Freshman Program

Students entering McGill with a Quebec CEGEP profile in Science will normally begin their programs in Physics with courses at the 200 level.

Students without this profile should normally take courses PHYS 131 and PHYS 142 if they have previously taken physics at the high school level and who intend to do programs in the Biological Sciences may instead take courses PHYS 101 and PHYS 102. All students are expected to have reasonable fluency in algebra, geometry, and trigonometry at the high school level. If this is not the case, then MATH 112 should be taken concurrently with PHYS 101. Those for whom this is not necessary are advised to take MATH 139 concurrently with PHYS 101.

12.14.29.5 Physics (PHYS) Faculty

Chair
C. Gale

Emeritus Professors

Subal Das Gupta; B.A., M.Sc.(Calc.), Ph.D.(McM.) (William C. Macdonald Emeritus Professor of Physics)
Nicholas DeTakacsy; B.Sc., M.Sc.(Montr.), Ph.D.(McG.)
Harry C.S. Lam; B.Sc.(McG.), Ph.D.(MIT)
M.P. Langleben; B.Sc., M.Sc., Ph.D.(McG.), F.R.S.C.
Tommy S.K. Mark; B.Sc., M.Sc., Ph.D.(McG.) (William C. Macdonald Emeritus Professor of Physics)
Emeritus Professors
Douglas G. Stairs; B.Sc., M.Sc.(Qu.), Ph.D.(Harv.) (William C. Macdonald Emeritus Professor of Physics)
John O. Strom-Olsen; B.A., M.S., Ph.D.(Cant.)
Martin J. Zuckermann; M.A., D.Phil.(Oxf.), F.R.S.C. (William C. Macdonald Emeritus Professor of Physics)

Post-Retirement Appointments
Z. Altounian; B.Sc., M.Sc.(Cairo), Ph.D.(McM.)
John E. Crawford; B.A., M.A.(Tor.), Ph.D.(McG.)
Robert B. Moore; B.Eng., M.Sc., Ph.D.(McG.)
Popat M. Patel; B.Sc., M.Sc.(Manc.), Ph.D.(Harv.)

Professors
Jean Barrette; B.Sc., M.Sc., Ph.D.(Montr.)
Robert Brandenberger; Dipl., A.M., Ph.D.(Harv.) (Canada Research Chair)
James M. Cline; B.Sc.(Calif.), M.Sc., Ph.D.(Calif. Tech.)
François Corriveau; B.Sc.(Laval), M.Sc.(Br. Col.), Docteur Sc.Nat.(Zurich)
Charles Gale; B.Sc.(Ott.), M.Sc., Ph.D.(McG.) (James McGill Professor)
Martin Grant; B.Sc.(PEI), M.Sc., Ph.D.(Tor.), F.R.S.C. (James McGill Professor)
Peter Gutter; Dipl., Ph.D.(Basel) (James McGill Professor)
Hong Guo; B.Sc.(Sichuan), M.Sc., Ph.D.(Pitt.), F.R.S.C. (James McGill Professor)
David Hanna; B.Sc.(McG.), M.A., Ph.D.(Harv.) (William C. Macdonald Professor of Physics)
Richard Harris; B.A.(Oxf.), D.Phil.(Sus.)
Victoria Kaspi; B.Sc.(McG.), M.A., Ph.D.(Princ.) (Canada Research Chair) (Lorne Trottier Chair in Astrophysics and Cosmology)
Shaun Lovejoy; B.A.(Cant.), Ph.D.(McG.)
Kenneth J. Ragan; B.Sc.(Alta.), D.Sc.(Geneva) (William C. Macdonald Professor of Physics)
Dominic H. Ryan; B.A., Ph.D.(Trin. Coll.)
Mark Sutton; B.Sc., M.Sc., Ph.D.(Tor.) (Ernest Rutherford Professor of Physics)

Associate Professors
Aashish Clerk; B.Sc.(Tor.), Ph.D.(C'nell) (Canada Research Chair)
Andrew Cumming; B.A.(Camb.), Ph.D.(Calif., Berk.)
Keshav Dasgupta; B.Sc., M.Sc.(Indian IT), Ph.D.(Tata)
Guillaume Gervais, B.Sc.(Sherb.), M.Sc.(McM.), Ph.D.(North. Univ.)
Michael Hilke; B.Sc., M.Sc., Ph.D.(Geneva)
Gil Holder; B.Sc., M.Sc.(Qu.), Ph.D.(Chic.) (Canada Research Chair)
Sangyong Jeon; B.Sc.(Seoul), M.Sc., Ph.D.(Wash.)
Guy Moore; B.Sc.(Calif.), Ph.D.(Princ.)
Steve Robertson; B.Sc.(Calg.), M.Sc., Ph.D.(Vic., BC)
Bob Rutledge; B.Sc.(USC), Ph.D.(MIT)
Brigitte Vachon; B.Sc.(McG.), Ph.D.(Vic., BC) (Canada Research Chair)
Andreas Warburton; B.Sc.(Vic., BC), M.Sc., Ph.D.(Tor.)
Paul Wiseman; B.Sc.(St. FX), Ph.D.(W. Ont.) (joint appt. with Chemistry)
Assistant Professors
William Coish; B.Sc.(Manit.), M.Sc.(McM.), Ph.D.(Basel)
David Cooke; B.Sc.(St. FX), Ph.D.(Alta.)
Matt Dobbs; B.Sc.(McG.), Ph.D.(Vic., BC) (Canada Research Chair)
Paul Francois; B.Sc.(Polytechnique, France), M.Sc., Ph.D.(Ecole Normale Superieure)
Alex Maloney; B.Sc., M.Sc.(Stan.), Ph.D.(Harv.) (William Dawson Scholar)
Tamar Pereg-Barnea; B.Sc.(Hebrew), M.Sc., Ph.D.(Br. Col.)
Walter Reisner; B.Sc.(Reed), Ph.D.(Princ.)
Brad Siwick; B.A.Sc., M.Sc., Ph.D.(Tor.) (Canada Research Chair)
Johannes Walcher; Dipl., Ph.D.(ETH Zurich)
Tracy Webb; B.Sc.(Tor.), M.Sc.(McM.), Ph.D.(Tor.)

Lecturer
F. Buchinger; Dipl.(Mainz), Ph.D.(Joh. Gutenberg U.)

Associate Members
G. Brouhard (Biology)
M. Chacron (Physiology)
K. Gehring (Biochemistry)
P. Hayden (Computer Science)
M. Mackey (Physiology)
J. Nadeau (Biomedical Engineering)
E. Podgorsak (Radiation Oncology)
D. Rassier (Kinesiology & Physical Education)
D. Ronis (Chemistry)
J. Seuntjens (Medical Physics)
T. Szkopek (Electrical & Computer Engineering)
F. Verhaegen (Oncology & Medical Physics)

Curator (Rutherford Museum and McPherson Collection)
Jean Barrette; B.Sc., M.Sc., Ph.D.(Montr.)

12.14.29.6 Bachelor of Science (B.Sc.) - Minor Physics (18 credits)
The 18-credit Minor permits no overlap with any other programs. It contains no Mathematics courses, although many of the courses in it have Math pre- or corequisites. It will, therefore, be particularly appropriate to students in Mathematics, but it is also available to any Science student with the appropriate mathematical background.

Students in certain programs (e.g., the Major Chemistry) will find that there are courses in the Minor that are already part of their program, or that they may not take for credit because of a substantial overlap of material with a course or courses in their program. After consultation with an adviser, such students may complete the Minor by substituting any other physics course(s) from the Major or Honours Physics programs.

Required Course (3 credits)

PHYS 257 (3) Experimental Methods 1

Complementary Courses (15 credits)
15 credits to be selected as follows:
One of:

- PHYS 230 (3) Dynamics of Simple Systems
- PHYS 251 (3) Honours Classical Mechanics 1

One of:

- PHYS 232 (3) Heat and Waves
- PHYS 253 (3) Thermal Physics

One of:

- PHYS 241 (3) Signal Processing
- PHYS 258 (3) Experimental Methods 2

One of:

- PHYS 214 (3) Introductory Astrophysics
- PHYS 224 (3) Physics of Music
- PHYS 260 (3) Modern Physics and Relativity
- PHYS 271 (3) Introduction to Quantum Physics

One of:

- PHYS 340 (3) Majors Electricity and Magnetism
- PHYS 350 (3) Honours Electricity and Magnetism

**12.14.29.7 Bachelor of Science (B.Sc.) - Minor Electrical Engineering (24 credits)**

[Program registration done by Student Affairs Office]

The Minor program does not carry professional recognition. Only students who satisfy the requirements of the Major Physics are eligible for this Minor. Students registered for this option cannot count PHYS 241 toward the requirements of the Major in Physics, and should replace this course by another Physics or Mathematics course. Students who select ECSE 334 in the Minor cannot count PHYS 328 toward the requirements of the Major in Physics, and should replace this course by another Physics or Mathematics course.

**Required Courses (12 credits)**

- ECSE 200 (3) Electric Circuits 1
- ECSE 210 (3) Electric Circuits 2
- ECSE 303 (3) Signals and Systems 1
- ECSE 330 (3) Introduction to Electronics

**Complementary Courses (12 credits)**

3 credits from the following and 9 credits of ECSE courses at the 200, 300, or 400 level subject to approval by the Department of Electrical and Computer Engineering.

- ECSE 305 (3) Probability and Random Signals 1
- ECSE 334 (3) Introduction to Microelectronics
12.14.29.8 Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Physics (48 credits)

Program Prerequisites

Students entering Physics programs from the Freshman program must have successfully completed the courses below or their equivalents. Quebec students must have completed the DEC with appropriate science and mathematics courses.

CHEM 110 (4) General Chemistry 1
CHEM 120 (4) General Chemistry 2
PHYS 131 (4) Mechanics and Waves
PHYS 142 (4) Electromagnetism and Optics

One of:
BIOL 111 (3) Principles: Organismal Biology
BIOL 112 (3) Cell and Molecular Biology

MATH 133 and either MATH 140/141 or MATH 150/151.
MATH 133 (3) Linear Algebra and Geometry
MATH 140 (3) Calculus 1
MATH 141 (4) Calculus 2
MATH 150 (4) Calculus A
MATH 151 (4) Calculus B

Required Courses (39 credits)
MATH 222 (3) Calculus 3
MATH 223 (3) Linear Algebra
MATH 314 (3) Advanced Calculus
MATH 315 (3) Ordinary Differential Equations
PHYS 230 (3) Dynamics of Simple Systems
PHYS 232 (3) Heat and Waves
PHYS 241 (3) Signal Processing
PHYS 257 (3) Experimental Methods 1
PHYS 258 (3) Experimental Methods 2
PHYS 333 (3) Thermal and Statistical Physics
PHYS 340 (3) Majors Electricity and Magnetism
PHYS 436 (3) Modern Physics
PHYS 446 (3) Majors Quantum Physics

Complementary Courses (9 credits)
9 credits selected from:
PHYS 328 (3) Electronics
PHYS 331 (3) Topics in Classical Mechanics
PHYS 339 (3) Measurements Laboratory in General Physics
PHYS 342 (3) Majors Electromagnetic Waves
Program Prerequisites

Students entering Physics programs from the Freshman program must have successfully completed the courses below or their equivalents. Quebec students must have completed the DEC with appropriate science and mathematics courses.

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<td>PHYS 142</td>
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One of:

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<td>BIOL 112</td>
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MATH 133 and either MATH 140/141 or MATH 150/151.

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U1 Required Courses (21 credits)

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U2 Required Courses (24 credits)

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<td>PHYS 342</td>
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U3 Required Courses (15 credits)

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<td>Majors Research Project</td>
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It is possible for students to transfer from the Major to the Honours program after the U1 year if they have passed all U1 Required courses and MATH 314 and MATH 315 with a C or better, and obtained a GPA of 3.5 or better in these courses. The written permission of an adviser is required for this change of program.

Note: The missing MATH 249 and PHYS 260 from the U1 Honours Year should be taken in U2.

Bachelor of Science (B.Sc.) - Major Physics and Geophysics (69 credits)

This joint program in Physics and Geophysics provides a firm basis for graduate work in geophysics and related fields as well as a sound preparation for those who wish to embark on a career directly after the B.Sc.

Program Prerequisites

Students entering Physics programs from the Freshman program must have successfully completed the courses below or their equivalents. Quebec students must have completed the DEC with appropriate science and mathematics courses.

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<td>CHEM 120</td>
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<td>PHYS 131</td>
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<td>PHYS 142</td>
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<td>Electromagnetism and Optics</td>
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One of:

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>BIOL 111</td>
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<td>Principles: Organismal Biology</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>3</td>
<td>Cell and Molecular Biology</td>
</tr>
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</table>

MATH 133 and either MATH 140/141 or MATH 150/151.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 133</td>
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<td>MATH 141</td>
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<td>MATH 151</td>
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U1 Required Courses (30 credits)

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<td>EPSC 210</td>
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<td>Introductory Mineralogy</td>
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<tr>
<td>EPSC 231</td>
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<td>Field School 1</td>
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<tr>
<td>MATH 222</td>
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<td>Calculus 3</td>
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<tr>
<td>MATH 223</td>
<td>3</td>
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<tr>
<td>MATH 314</td>
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<td>Advanced Calculus</td>
</tr>
<tr>
<td>PHYS 230</td>
<td>3</td>
<td>Dynamics of Simple Systems</td>
</tr>
</tbody>
</table>
PHYS 232 (3) Heat and Waves
PHYS 257 (3) Experimental Methods 1
PHYS 258 (3) Experimental Methods 2

**U2 Required Courses** (18 credits)
- EPSC 320 (3) Elementary Earth Physics
- EPSC 350 (3) Tectonics
- MATH 315 (3) Ordinary Differential Equations
- MATH 319 (3) Introduction to Partial Differential Equations
- PHYS 339 (3) Measurements Laboratory in General Physics
- PHYS 340 (3) Majors Electricity and Magnetism

**U2 or U3 Required Courses** (6 credits)
- EPSC 330 (3) Earthquakes and Earth Structure
- EPSC 510 (3) Geodynamics and Geomagnetism

**U3 Required Courses** (15 credits)
- PHYS 331 (3) Topics in Classical Mechanics
- PHYS 333 (3) Thermal and Statistical Physics
- PHYS 342 (3) Majors Electromagnetic Waves
- PHYS 432 (3) Physics of Fluids
- PHYS 446 (3) Majors Quantum Physics

### Bachelor of Science (B.Sc.) - Major Physics and Computer Science (66 credits)

The Major Physics and Computer Science is designed to give motivated students the opportunity to combine the two fields in a way that will distinguish them from the graduates of either field by itself. The two disciplines complement each other, with physics providing an analytic problem-solving outlook and basic understanding of nature, while computer science enhances the ability to make practical and marketable applications, in addition to having its own theoretical interest. Graduates of this program may be able to present themselves as being more immediately useful than a pure physics major, but with more breadth than just a programmer. They will be able to demonstrate their combined expertise in the Special Project course which is the centrepiece of the final year of the program.

### Program Prerequisites

Students entering Physics programs from the Freshman program must have successfully completed the courses below or their equivalents. Quebec students must have completed the DEC with appropriate science and mathematics courses.

- CHEM 110 (4) General Chemistry 1
- CHEM 120 (4) General Chemistry 2
- PHYS 131 (4) Mechanics and Waves
- PHYS 142 (4) Electromagnetism and Optics

One of:

- BIOL 111 (3) Principles: Organismal Biology
- BIOL 112 (3) Cell and Molecular Biology

MATH 133 and either MATH 140/141 or MATH 150/151.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>MATH 133</td>
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<td>Linear Algebra and Geometry</td>
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<tr>
<td>MATH 140</td>
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<td>Calculus 1</td>
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<td>MATH 141</td>
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### U1 Required Courses (21 credits)

<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>COMP 250</td>
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<td>Introduction to Computer Science</td>
</tr>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
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<tr>
<td>MATH 223</td>
<td>3</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 240</td>
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<td>Discrete Structures 1</td>
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<tr>
<td>PHYS 230</td>
<td>3</td>
<td>Dynamics of Simple Systems</td>
</tr>
<tr>
<td>PHYS 257</td>
<td>3</td>
<td>Experimental Methods 1</td>
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<tr>
<td>PHYS 258</td>
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### U2 Required Courses (24 credits)

<table>
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<tr>
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<td>Introduction to Software Systems</td>
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<td>COMP 251</td>
<td>3</td>
<td>Data Structures and Algorithms</td>
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<td>COMP 302</td>
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<td>Programming Languages and Paradigms</td>
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<td>COMP 350</td>
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<td>Numerical Computing</td>
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<tr>
<td>MATH 314</td>
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<td>Advanced Calculus</td>
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<tr>
<td>MATH 315</td>
<td>3</td>
<td>Ordinary Differential Equations</td>
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<tr>
<td>PHYS 232</td>
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<td>Heat and Waves</td>
</tr>
<tr>
<td>PHYS 241</td>
<td>3</td>
<td>Signal Processing</td>
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### U3 Required Courses (21 credits)

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<tr>
<th>Course Code</th>
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<tr>
<td>COMP 360</td>
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<td>MATH 323</td>
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<td>PHYS 331</td>
<td>3</td>
<td>Topics in Classical Mechanics</td>
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<td>PHYS 339</td>
<td>3</td>
<td>Measurements Laboratory in General Physics</td>
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<td>PHYS 340</td>
<td>3</td>
<td>Majors Electricity and Magnetism</td>
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<td>PHYS 446</td>
<td>3</td>
<td>Majors Quantum Physics</td>
</tr>
<tr>
<td>PHYS 489</td>
<td>3</td>
<td>Special Project</td>
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</table>

### Bachelor of Science (B.Sc.) - Honours Physics (78 credits)

Students entering this program for the first time should have high standing in mathematics and physics. In addition, a student who has not completed the equivalent of MATH 222 must take it in the first term without receiving credit toward the 78 credits required in the Honours program.

A student whose average in the required and complementary courses in any year falls below a GPA of 3.00, or whose grade in any individual required or complementary course falls below a C (unless it is improved to a C or higher in a supplementary examination or by retaking the course), may not register in the Honours program the following year, or graduate with the Honours degree, except with the permission of the Department.

### Program Prerequisites

Students entering Physics programs from the Freshman program must have successfully completed the courses below or their equivalents. Quebec students must have completed the DEC with appropriate science and mathematics courses.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
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<td>General Chemistry 1</td>
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<td>CHEM 120</td>
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<td>PHYS 131</td>
<td>4</td>
<td>Mechanics and Waves</td>
</tr>
<tr>
<td>PHYS 142</td>
<td>4</td>
<td>Electromagnetism and Optics</td>
</tr>
</tbody>
</table>

One of:
- BIOL 111 (3) Principles: Organismal Biology
- BIOL 112 (3) Cell and Molecular Biology

MATH 133 and either MATH 140/141 or MATH 150/151.
- MATH 133 (3) Linear Algebra and Geometry
- MATH 140 (3) Calculus 1
- MATH 141 (4) Calculus 2
- MATH 150 (4) Calculus A
- MATH 151 (4) Calculus B

**U1 Required Courses (27 credits)**
- MATH 247 (3) Honours Applied Linear Algebra
- MATH 248 (3) Honours Advanced Calculus
- MATH 249 (3) Honours Complex Variables
- MATH 325 (3) Honours Ordinary Differential Equations
- PHYS 241 (3) Signal Processing
- PHYS 251 (3) Honours Classical Mechanics 1
- PHYS 257 (3) Experimental Methods 1
- PHYS 258 (3) Experimental Methods 2
- PHYS 260 (3) Modern Physics and Relativity

**U2 Required Courses (24 credits)**
- MATH 375 (3) Honours Partial Differential Equations
- PHYS 253 (3) Thermal Physics
- PHYS 350 (3) Honours Electricity and Magnetism
- PHYS 351 (3) Honours Classical Mechanics 2
- PHYS 357 (3) Honours Quantum Physics 1
- PHYS 359 (3) Honours Laboratory in Modern Physics 1
- PHYS 362 (3) Statistical Mechanics
- PHYS 457 (3) Honours Quantum Physics 2

**U3 Required Courses (6 credits)**
- PHYS 352 (3) Honours Electromagnetic Waves
- PHYS 551 (3) Quantum Theory
U3 Complementary Courses (21 credits)

6 credits selected from:

Note: PHYS 459D1 and PHYS 459D2 are taken together.

PHYS 459D1 (3) Honours Research Thesis
PHYS 459D2 (3) Honours Research Thesis
PHYS 469 (3) Honours Laboratory in Modern Physics 2
PHYS 479 (3) Honours Research Project

15 credits selected from the list below (students may substitute one or more courses with any 3-credit course approved by the Department of Physics):

PHYS 432 (3) Physics of Fluids
PHYS 434 (3) Optics
PHYS 479 (3) Honours Research Project
PHYS 514 (3) General Relativity
PHYS 521 (3) Astrophysics
PHYS 557 (3) Nuclear Physics
PHYS 558 (3) Solid State Physics
PHYS 559 (3) Advanced Statistical Mechanics
PHYS 562 (3) Electromagnetic Theory
PHYS 567 (3) Particle Physics
PHYS 580 (3) Introduction to String Theory

12.14.29.13 Bachelor of Science (B.Sc.) - Honours Mathematics and Physics (81 credits)

This is a specialized and demanding program intended for students who wish to develop a strong basis in both Mathematics and Physics in preparation for graduate work and a professional or academic career. Although the program is optimized for theoretical physics, it is broad enough and strong enough to prepare students for further study in either experimental physics or mathematics.

The minimum requirement for entry into the program is completion with high standing of the usual CEGEP courses in physics and in mathematics, or the Physics Program Prerequisites as explained below. In addition, a student who has not completed the equivalent of MATH 222 must take it in the first term without receiving credit toward the 81 credits required in the Honours program.

A student whose average in the required and complementary courses in any year falls below a GPA of 3.00, or whose grade in any individual required or complementary course falls below a C (unless the student improves the grade to a C or higher through a supplemental exam or by retaking the course), may not register in the Honours program the following year, or graduate with the Honours degree, except with the permission of both departments. The student will have two advisers, one from Mathematics and the other from Physics.

Program Prerequisites

Students entering Physics programs from the Freshman program must have successfully completed the courses below or their equivalents. Quebec students must have completed the DEC with appropriate science and mathematics courses.

CHEM 110 (4) General Chemistry 1
CHEM 120 (4) General Chemistry 2
PHYS 131 (4) Mechanics and Waves
PHYS 142 (4) Electromagnetism and Optics

One of:

BIOL 111 (3) Principles: Organismal Biology
BIOL 112 (3) Cell and Molecular Biology
MATH 133 and either MATH 140/141 or MATH 150/151.

MATH 133  (3)  Linear Algebra and Geometry
MATH 140  (3)  Calculus 1
MATH 141  (4)  Calculus 2
MATH 150  (4)  Calculus A
MATH 151  (4)  Calculus B

U1 Required Courses (27 credits)

MATH 235  (3)  Algebra 1
MATH 248  (3)  Honours Advanced Calculus
MATH 249  (3)  Honours Complex Variables
MATH 325  (3)  Honours Ordinary Differential Equations
PHYS 241  (3)  Signal Processing
PHYS 251  (3)  Honours Classical Mechanics 1
PHYS 257  (3)  Experimental Methods 1
PHYS 258  (3)  Experimental Methods 2
PHYS 260  (3)  Modern Physics and Relativity

U2 Required Courses (27 credits)

MATH 242  (3)  Analysis 1
MATH 255  (3)  Honours Analysis 2
MATH 375  (3)  Honours Partial Differential Equations
PHYS 253  (3)  Thermal Physics
PHYS 350  (3)  Honours Electricity and Magnetism
PHYS 351  (3)  Honours Classical Mechanics 2
PHYS 357  (3)  Honours Quantum Physics 1
PHYS 362  (3)  Statistical Mechanics
PHYS 457  (3)  Honours Quantum Physics 2

U3 Required Courses (12 credits)

MATH 354  (3)  Honours Analysis 3
MATH 380  (3)  Honours Differential Geometry
PHYS 352  (3)  Honours Electromagnetic Waves
PHYS 359  (3)  Honours Laboratory in Modern Physics 1

U1 Complementary Course (3 credits)

MATH 247  (3)  Honours Applied Linear Algebra
MATH 251  (3)  Honours Algebra 2

U3 Complementary Courses (12 credits)

12 credits are selected as follows:
3 credits from:

- MATH 355 (3) Honours Analysis 4
- MATH 370 (3) Honours Algebra 3

6 credits selected from:

- PHYS 432 (3) Physics of Fluids
- PHYS 479 (3) Honours Research Project
- PHYS 514 (3) General Relativity
- PHYS 521 (3) Astrophysics
- PHYS 551 (3) Quantum Theory
- PHYS 557 (3) Nuclear Physics
- PHYS 558 (3) Solid State Physics
- PHYS 559 (3) Advanced Statistical Mechanics
- PHYS 562 (3) Electromagnetic Theory
- PHYS 567 (3) Particle Physics
- PHYS 580 (3) Introduction to String Theory

3 credits in Honours Mathematics.

**12.14 Bachelor of Science (B.Sc.) - Honours Physics and Chemistry (80 credits)**

This is a specialized and demanding program intended primarily, although not exclusively, for students with a theoretical bias who are interested in working in fields of study at the crossroads of physical chemistry and physics. The program will prepare students for either theoretical or experimental graduate work in departments where there is an emphasis on such cross-disciplinary areas as condensed matter physics, chemical physics, or material science.

A student whose average in the required and complementary courses in any year falls below a GPA of 3.00, or whose grade in any individual required or complementary course falls below a C (unless the student improves the grade to a C or above by taking a supplemental exam or retaking the course), may not register in this Honours program the following year, or graduate with the Honours degree, except with permission of both departments.

The student will have two advisors, one from Chemistry and the other from Physics.

**Program Prerequisites**

Students entering Physics programs from the Freshman program must have successfully completed the courses below or their equivalents. Quebec students must have completed the DEC with appropriate science and mathematics courses.

- CHEM 110 (4) General Chemistry 1
- CHEM 120 (4) General Chemistry 2
- PHYS 131 (4) Mechanics and Waves
- PHYS 142 (4) Electromagnetism and Optics

One of:

- BIOL 111 (3) Principles: Organismal Biology
- BIOL 112 (3) Cell and Molecular Biology

MATH 133 and either MATH 140/141 or MATH 150/151.

- MATH 133 (3) Linear Algebra and Geometry
- MATH 140 (3) Calculus 1
- MATH 141 (4) Calculus 2
### U1 Required Courses (30 credits)
- **CHEM 223** (2) Introductory Physical Chemistry 1  
- **CHEM 243** (2) Introductory Physical Chemistry 2  
- **CHEM 253** (1) Introductory Physical Chemistry 1 Laboratory  
- **CHEM 263** (1) Introductory Physical Chemistry 2 Laboratory  
- **MATH 247** (3) Honours Applied Linear Algebra  
- **MATH 248** (3) Honours Advanced Calculus  
- **MATH 249** (3) Honours Complex Variables  
- **MATH 325** (3) Honours Ordinary Differential Equations  
- **PHYS 241** (3) Signal Processing  
- **PHYS 251** (3) Honours Classical Mechanics 1  
- **PHYS 257** (3) Experimental Methods 1  
- **PHYS 258** (3) Experimental Methods 2  

### U2 Required Courses (24 credits)
- **CHEM 212** (4) Introductory Organic Chemistry 1  
- **CHEM 281** (3) Inorganic Chemistry 1  
- **CHEM 355** (3) Molecular Properties and Structure 2  
- **CHEM 365** (2) Statistical Thermodynamics  
- **COMP 208** (3) Computers in Engineering  
- **PHYS 350** (3) Honours Electricity and Magnetism  
- **PHYS 357** (3) Honours Quantum Physics 1  
- **PHYS 457** (3) Honours Quantum Physics 2  

### U3 Required Courses (14 credits)
- **CHEM 393** (2) Physical Chemistry Laboratory 2  
- **CHEM 556** (3) Advanced Quantum Mechanics  
- **CHEM 574** (3) Introductory Polymer Chemistry  
- **PHYS 352** (3) Honours Electromagnetic Waves  
- **PHYS 558** (3) Solid State Physics  

### U3 Complementary Courses (12 credits)
(With at least 3 credits in Chemistry and 3 credits in Physics)

3 credits selected from:  
- **CHEM 593** (3) Statistical Mechanics  
- **PHYS 559** (3) Advanced Statistical Mechanics  

9 credits selected from the list below:
Note: CHEM 480D1/CHEM 480D2 and CHEM 490D1/CHEM 490D2 are taken together.

CHEM 480D1 (1.5) Research Project 2
CHEM 480D2 (1.5) Research Project 2
CHEM 490D1 (1.5) Research Project 3
CHEM 490D2 (1.5) Research Project 3
CHEM 531 (3) Chemistry of Inorganic Materials
CHEM 575 (3) Chemical Kinetics
CHEM 585 (3) Colloid Chemistry
MATH 375 (3) Honours Partial Differential Equations
PHYS 351 (3) Honours Classical Mechanics 2
PHYS 434 (3) Optics
PHYS 469 (3) Honours Laboratory in Modern Physics 2
PHYS 479 (3) Honours Research Project
PHYS 562 (3) Electromagnetic Theory

12.14.15 Physics (PHYS) Related Programs

12.14.15.1 Joint Major in Atmospheric Science and Physics

See section 12.14.3: Atmospheric and Oceanic Sciences (ATOC). This program provides a firm basis for graduate work in atmospheric science and related fields as well as a sound preparation for those who wish to embark on a career directly after the B.Sc. Students should consult undergraduate advisers in both departments.

12.14.15.2 Joint Major in Physiology and Physics

See section 12.14.30: Physiology (PHGY). This program provides a firm basis for graduate work in bio-physics and other interdisciplinary fields involving the physical and biological sciences.

12.14.30 Physiology (PHGY)

12.14.30.1 Location

McIntyre Medical Sciences Building, Room 1021
3655 Promenade Sir-William-Osler
Montreal, Quebec H3G 1Y6

Telephone: 514-398-4316
Fax: 514-398-7452
Website: www.medicine.mcgill.ca/physio

12.14.30.2 About Physiology

Physiology has its roots in many of the basic sciences including biology, chemistry, mathematics, and physics. Physiology overlaps with other biomedical sciences such as anatomy, biochemistry, pathology and pharmacology, and with psychology and biomedical engineering, and is one of the prime contributors of basic scientific knowledge to the clinical medical sciences.

Members of the Department of Physiology at McGill are engaged in studies dealing with molecules, single cells, or entire systems in a variety of vertebrates, including man. A wide range of interest and expertise is represented, including cardiovascular, respiratory, gastrointestinal and renal physiology, the physiology of exercise, neurophysiology, endocrinology, immunology, biophysics, and biomathematics. Some faculty members have formal or informal links with the departments of mathematics, physics, electrical engineering, and chemistry, and with clinical departments (medicine, surgery, pediatrics, neurology, obstetrics, psychiatry, anesthesia), reflecting and reinforcing the close ties between physiology and other disciplines.

Graduates at the B.Sc. level have found rewarding careers in teaching, in secondary schools and CEGEPs, government service, and laboratory technical assistance, such as in pharmaceutical houses, hospitals, and institutions of higher learning. Moreover, physiology provides an excellent background for medicine, dentistry or other postgraduate work, in such fields as physiology, experimental medicine, pharmacology, biochemistry, or physiological psychology.

The programs offered in Physiology differ in their orientation but they all have a common core of material covering cardiovascular, respiratory, gastrointestinal and renal physiology, neurophysiology, endocrinology, and immunology. The specified U1 courses are identical for all programs except the Joint Major programs in Physiology and Physics, Physiology and Mathematics, and the Joint Honours program in Immunology, and thus afford the student maximal flexibility before deciding on a particular program to follow in U2 and U3.
Academic advising is compulsory. All new students to the Department, Freshman and CEGEP, must see an adviser upon entering the program. Contact the Student Affairs Officer at 514-398-3689 for more information.

Returning students are required to consult with their advisers during the advising period for returning students, and regularly throughout the year. It is important that graduating students have their record checked by their adviser at the beginning of their final year.

PLEASE NOTE: Complementary courses are not electives.

The difference between Complementary courses and Required courses is that Complementary courses are defined as offering an element of choice, however small that choice may be. Students may choose from the two (or more) courses specified within Complementary Course segments of a program description, but ONLY from those. For further information, refer to University Regulations and Information > Course Information and Regulations.

12.14.30.3 Physiology (PHGY) Faculty

Chair
John Orlowski

Emeritus Professors

Thomas M.S. Chang; B.Sc., M.D.,C.M., Ph.D.(McG.), F.R.C.P.(C)
Kresimir Krnjevic; O.C., B.Sc., Ph.D., M.B., Ch.B.(Edin.), F.R.S.C
Wayne Lapp; M.S.A.(Tor.), Ph.D.(McG.)
Mortimer Levy; B.Sc., M.D.,C.M.(McG.), F.R.C.P.(C) (joint appt. with Medicine)
George Mandl; B.Sc.(C'dia), Ph.D.(McG.)
G. Melvill Jones; B.A., M.A., M.B., B.Ch., M.D.(Cant.)
J. Milic-Emili; M.D.(Milan)
C. Polosa; M.D., Ph.D.

Professors

Monroe W. Cohen; B.Sc., Ph.D.(McG.)
Ellis J. Cooper; B.Eng.(Sir G. Wms.), M.Sc.(Sur.), Ph.D.(McM.)
Kathleen Cullen; B.Sc.(Brown), Ph.D.(Chic.) (William Dawson Scholar)
Leon Glass; B.S.(Brooklyn), Ph.D.(Chic.) (Isadore Rosenfeld Professor of Cardiology)
Phil Gold; C.C., B.Sc., M.Sc., Ph.D., M.D.,C.M.(McG.), F.R.C.P.(C.), F.R.S.C. (joint appt. with Medicine)
David Goltzman; B.Sc., M.D.,C.M.(McG.) (Antoine G. Massabki Professor of Medicine) (joint appt. with Medicine)
John Hanrahan; Ph.D.(Br. Col.)
Gergely Lukacs; M.D., Ph.D.(Budapest)
Michael Mackey; B.A., Ph.D.(Wash.) (Joseph Morley Drake Professor of Physiology)
Sheldon Magder; M.D.(Tor.) (joint appt. with Medicine)
Jacapo P. Mortola; M.D.(Milan)
John Orlowski; B.Sc.(McG.), M.Sc., Ph.D.(Qu.) (James McGill Professor)
Premsyl Ponka; M.D., Ph.D.(Prague)
Alvin Shrier; B.Sc.(C'dia), Ph.D.(Dal.) (Hosmer Professor of Physiology)
Douglas G.D. Watt; M.D., Ph.D.(McG.)
John White; B.Sc., M.Sc.(Car.), Ph.D.(Harv.)

Assistant Professors

Maurice Chacron; Ph.D.(Ott.)
Russell Jones; Ph.D.(Tor.)
**Associate Professors**

Erik Cook; Ph.D.(Baylor College, Houston)

Riaz Farookhi; B.Sc., M.Sc.(MIT), Ph.D.(Tufts)

Mladen Glavinovic; B.Sc.(Zagreb), M.Sc.(Tor.), Ph.D.(McG.)

Michael Guevara; B.Sc., M.Eng., Ph.D.(McG.)

Pejmun Haghighi; Ph.D.(McG.)

Julio Martinez-Trujillo; Ph.D.(Tübingen)

Ursula Stochaj; Ph.D.(Cologne)

Ann Wechsler; B.A.(Tor.), M.Sc., Ph.D.(McG.)

**Associate Professor (Part-time)**

Nicole Bernard; B.Sc.(McG.), Ph.D.(Duke)

**Associate Members**

Anaesthesia: Steven Backman, Fernando Cervero

Biomedical Engineering: Robert E. Kearney, Satya Prakash

Electrical and Computer Engineering: Sam Musallam

Kinesiology and Physical Education: Dilson Rassier


Nephrology: Serge Lemay, Tomoko Takano

Neurology: David Ragsdale

Neurology and Neurosurgery: Jack Antel, Massimo Avoli, Charles Bourque, Sal T. Carbonetto, Daniel Guitton, Christopher Pack, Melissa Vollrath

Ophthalmology: Curtis Baker

Otolaryngology: Bernard Segal

Pediatrics: Charles Rohlicek

Pharmacology: Terence Hebert

Psychiatry: Nicolas Cermakian, Bernardo Dubrovsky, Christina Gianoulakis

**Adjunct Professors**

Roy Caplan, Montreal

Peter Swain, London

---

**12.14.30.4 Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Physiology (50 credits)**

**Required Courses (38 credits)**

* Students who have taken CHEM 212 and/or CHEM 222 in CEGEP are exempted and must replace these credits with an elective course(s).

- **BIOL 200** (3) Molecular Biology
- **BIOL 202** (3) Basic Genetics
- **BIOL 301** (4) Cell and Molecular Laboratory
- **CHEM 212*** (4) Introductory Organic Chemistry 1
- **CHEM 222*** (4) Introductory Organic Chemistry 2
- **PHGY 209** (3) Mammalian Physiology 1
- **PHGY 210** (3) Mammalian Physiology 2
PHGY 212 (1)  Introductory Physiology Laboratory 1
PHGY 213 (1)  Introductory Physiology Laboratory 2
PHGY 311 (3)  Channels, Synapses & Hormones
PHGY 312 (3)  Respiratory, Renal, & Cardiovascular Physiology
PHGY 313 (3)  Blood, Gastrointestinal, & Immune Systems Physiology
PHGY 314 (3)  Integrative Neuroscience

**Complementary Courses (12 credits)**

12 credits selected as follows:

3 credits selected from:

- BIOC 212 (3)  Molecular Mechanisms of Cell Function
- BIOL 201 (3)  Cell Biology and Metabolism

3 credits selected from:

- BIOL 309 (3)  Mathematical Models in Biology
- BIOL 373 (3)  Biometry

**Upper-Level Physiology (ULP) Courses**

6 credits selected from the Upper-Level Physiology (ULP) course list as follows:

All Physiology courses 400 level and above.

Note:

The 6-credit course PHGY 459D1/D2 equals 3 credits of ULP and 3 credits of electives.
The 9-credit course PHGY 461D1/D2 equals 3 credits of ULP and 6 credits of electives.

- ANAT 541 (3)  Cell and Molecular Biology of Aging
- BIOL 532 (3)  Developmental Neurobiology Seminar
- BMDE 519 (3)  Biomedical Signals and Systems
- EXMD 502 (3)  Advanced Endocrinology 01
- EXMD 503 (3)  Advanced Endocrinology 02
- EXMD 506 (3)  Advanced Applied Cardiovascular Physiology
- EXMD 507 (3)  Advanced Applied Respiratory Physiology
- EXMD 508 (3)  Advanced Topics in Respiration
- MIMM 413 (3)  Parasitology
- MIMM 414 (3)  Advanced Immunology
- MIMM 465 (3)  Bacterial Pathogenesis
- MIMM 466 (3)  Viral Pathogenesis
- PHGY 524 (3)  Chronobiology
- PSYC 470 (3)  Memory and Brain
- PSYT 500 (3)  Advances: Neurobiology of Mental Disorders

**12.14.30.5 Bachelor of Science (B.Sc.) - Major Physiology (65 credits)**

The Major program includes, in addition to some intensive studies in Physiology, a strong core content of related biomedical sciences. Admission to the Major program will be in U2, upon completion of the U1 required courses, and in consultation with the student's adviser.
If not previously taken, CHEM 212 "Introductory Organic Chemistry 1" must be completed in addition to the 64-65 program credits. Students may complete this program with a minimum of 64 credits or a maximum of 65 credits depending on their choice of complementary courses.

### U1 Required Courses (18 credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
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<td>Molecular Biology</td>
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<tr>
<td>BIOL 202</td>
<td>3</td>
<td>Basic Genetics</td>
</tr>
<tr>
<td>CHEM 222</td>
<td>4</td>
<td>Introductory Organic Chemistry 2</td>
</tr>
<tr>
<td>PHGY 209</td>
<td>3</td>
<td>Mammalian Physiology 1</td>
</tr>
<tr>
<td>PHGY 210</td>
<td>3</td>
<td>Mammalian Physiology 2</td>
</tr>
<tr>
<td>PHGY 212</td>
<td>1</td>
<td>Introductory Physiology Laboratory 1</td>
</tr>
<tr>
<td>PHGY 213</td>
<td>1</td>
<td>Introductory Physiology Laboratory 2</td>
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### U2 and U3 Required Courses (19 credits)

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<tr>
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<th>Credits</th>
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<tbody>
<tr>
<td>BIOC 311</td>
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<td>Metabolic Biochemistry</td>
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<tr>
<td>BIOL 301</td>
<td>4</td>
<td>Cell and Molecular Laboratory</td>
</tr>
<tr>
<td>PHGY 311</td>
<td>3</td>
<td>Channels, Synapses &amp; Hormones</td>
</tr>
<tr>
<td>PHGY 312</td>
<td>3</td>
<td>Respiratory, Renal, &amp; Cardiovascular Physiology</td>
</tr>
<tr>
<td>PHGY 313</td>
<td>3</td>
<td>Blood, Gastrointestinal, &amp; Immune Systems Physiology</td>
</tr>
<tr>
<td>PHGY 314</td>
<td>3</td>
<td>Integrative Neuroscience</td>
</tr>
</tbody>
</table>

### Complementary Courses (28 credits)

12-13 credits selected as follows:

#### 3 credits, one of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>BIOL 212</td>
<td>3</td>
<td>Molecular Mechanisms of Cell Function</td>
</tr>
<tr>
<td>BIOL 201</td>
<td>3</td>
<td>Cell Biology and Metabolism</td>
</tr>
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</table>

#### 3 credits, one of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 309</td>
<td>3</td>
<td>Mathematical Models in Biology</td>
</tr>
<tr>
<td>BIOL 373</td>
<td>3</td>
<td>Biometry</td>
</tr>
</tbody>
</table>

#### 3 credits, one of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 203</td>
<td>3</td>
<td>Survey of Physical Chemistry</td>
</tr>
<tr>
<td>CHEM 204</td>
<td>3</td>
<td>Physical Chemistry/Biological Sciences 1</td>
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#### 3-4 credits, one of:

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<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ANAT 214</td>
<td>3</td>
<td>Systemic Human Anatomy</td>
</tr>
<tr>
<td>ANAT 261</td>
<td>4</td>
<td>Introduction to Dynamic Histology</td>
</tr>
</tbody>
</table>

### Upper Level Physiology (ULP) Courses

9 credits selected from the Upper-Level Physiology (ULP) course list as follows:

All Physiology courses 400 level and above.
Note:
The 6-credit course PHGY 459D1/D2 equals 3 credits of ULP and 3 credits of electives.
The 9-credit course PHGY 461D1/D2 equals 3 credits of ULP and 6 credits of electives.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
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<tbody>
<tr>
<td>ANAT 541</td>
<td>3</td>
<td>Cell and Molecular Biology of Aging</td>
</tr>
<tr>
<td>BIOL 532</td>
<td>3</td>
<td>Developmental Neurobiology Seminar</td>
</tr>
<tr>
<td>BMDE 519</td>
<td>3</td>
<td>Biomedical Signals and Systems</td>
</tr>
<tr>
<td>EXMD 502</td>
<td>3</td>
<td>Advanced Endocrinology 01</td>
</tr>
<tr>
<td>EXMD 503</td>
<td>3</td>
<td>Advanced Endocrinology 02</td>
</tr>
<tr>
<td>EXMD 506</td>
<td>3</td>
<td>Advanced Applied Cardiovascular Physiology</td>
</tr>
<tr>
<td>EXMD 507</td>
<td>3</td>
<td>Advanced Applied Respiratory Physiology</td>
</tr>
<tr>
<td>EXMD 508</td>
<td>3</td>
<td>Advanced Topics in Respiration</td>
</tr>
<tr>
<td>MIMM 413</td>
<td>3</td>
<td>Parasitology</td>
</tr>
<tr>
<td>MIMM 414</td>
<td>3</td>
<td>Advanced Immunology</td>
</tr>
<tr>
<td>MIMM 465</td>
<td>3</td>
<td>Bacterial Pathogenesis</td>
</tr>
<tr>
<td>MIMM 466</td>
<td>3</td>
<td>Viral Pathogenesis</td>
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<tr>
<td>PHGY 524</td>
<td>3</td>
<td>Chronobiology</td>
</tr>
<tr>
<td>PSYC 470</td>
<td>3</td>
<td>Memory and Brain</td>
</tr>
<tr>
<td>PSYT 500</td>
<td>3</td>
<td>Advances: Neurobiology of Mental Disorders</td>
</tr>
</tbody>
</table>

**Upper Level Science (ULS) Courses**

6 credits selected from the Upper-Level Science (ULS) course list as follows:

Note:
For Anatomy, Chemistry, Neurology, and Neurosurgery: select from all courses 300 level and above and the ULS courses listed below.
For Biochemistry, Computer Science, Microbiology and Immunology, Mathematics, Physics, and Pathology: select from all courses 300 level and above.
For Biology, Experimental Medicine, Pharmacology, and Psychology: select from the ULS courses listed below.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 214</td>
<td>3</td>
<td>Systemic Human Anatomy</td>
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<tr>
<td>ANAT 261</td>
<td>4</td>
<td>Introduction to Dynamic Histology</td>
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<tr>
<td>ANAT 262</td>
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<td>Introductory Molecular and Cell Biology</td>
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<td>BIOL 300</td>
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<td>Molecular Biology of the Gene</td>
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<td>BIOL 303</td>
<td>3</td>
<td>Developmental Biology</td>
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<tr>
<td>BIOL 309</td>
<td>3</td>
<td>Mathematical Models in Biology</td>
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<tr>
<td>BIOL 313</td>
<td>3</td>
<td>Eukaryotic Cell Biology</td>
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<td>BIOL 314</td>
<td>3</td>
<td>Molecular Biology of Oncogenes</td>
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<tr>
<td>BIOL 324</td>
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<td>Ecological Genetics</td>
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<tr>
<td>BIOL 370</td>
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<td>Human Genetics Applied</td>
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<td>BIOL 373</td>
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<td>Biometry</td>
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<td>BIOL 389</td>
<td>3</td>
<td>Laboratory in Neurobiology</td>
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<td>BIOL 416</td>
<td>3</td>
<td>Genetics of Mammalian Development</td>
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<tr>
<td>BIOL 468</td>
<td>6</td>
<td>Independent Research Project 3</td>
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<td>BIOL 518</td>
<td>3</td>
<td>Advanced Topics in Cell Biology</td>
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<td>BIOL 520</td>
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<td>Gene Activity in Development</td>
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<td>BIOL 524</td>
<td>3</td>
<td>Topics in Molecular Biology</td>
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<td>BIOL 532</td>
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<td>Developmental Neurobiology Seminar</td>
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<tr>
<td>Course Code</td>
<td>Credits</td>
<td>Course Title</td>
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<tr>
<td>BIOL 544</td>
<td>3</td>
<td>Genetic Basis of Life Span</td>
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<tr>
<td>BIOL 551</td>
<td>3</td>
<td>Molecular Biology: Cell Cycle</td>
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<tr>
<td>BIOL 575</td>
<td>3</td>
<td>Human Biochemical Genetics</td>
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<tr>
<td>BIOL 588</td>
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<td>Advances in Molecular/Cellular Neurobiology</td>
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<td>Advanced Endocrinology 01</td>
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<tr>
<td>EXMD 503</td>
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<td>Advanced Endocrinology 02</td>
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<tr>
<td>EXMD 504</td>
<td>3</td>
<td>Biology of Cancer</td>
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<tr>
<td>EXMD 506</td>
<td>3</td>
<td>Advanced Applied Cardiovascular Physiology</td>
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<tr>
<td>EXMD 507</td>
<td>3</td>
<td>Advanced Applied Respiratory Physiology</td>
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<td>EXMD 508</td>
<td>3</td>
<td>Advanced Topics in Respiration</td>
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<td>3</td>
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<td>NEUR 310</td>
<td>3</td>
<td>Cellular Neurobiology</td>
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<td>Drug Design and Development 1</td>
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<td>PHAR 504</td>
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<td>PHAR 562</td>
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<td>PHAR 563</td>
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<td>PHAR 599</td>
<td>6</td>
<td>Pharmacology Research Project</td>
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<td>PSYC 302</td>
<td>3</td>
<td>The Psychology of Pain</td>
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<td>PSYC 311</td>
<td>3</td>
<td>Human Cognition and the Brain</td>
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<td>PSYC 318</td>
<td>3</td>
<td>Behavioural Neuroscience 2</td>
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<tr>
<td>PSYC 342</td>
<td>3</td>
<td>Hormones and Behaviour</td>
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<tr>
<td>PSYC 353</td>
<td>3</td>
<td>Laboratory in Human Perception</td>
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<td>PSYC 410</td>
<td>3</td>
<td>Special Topics in Neuropsychology</td>
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<td>PSYC 427</td>
<td>3</td>
<td>Sensorimotor Behaviour</td>
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<td>PSYC 470</td>
<td>3</td>
<td>Memory and Brain</td>
</tr>
<tr>
<td>PSYC 522</td>
<td>3</td>
<td>Neurochemistry and Behaviour</td>
</tr>
<tr>
<td>PSYC 526</td>
<td>3</td>
<td>Advances in Visual Perception</td>
</tr>
<tr>
<td>PSYT 500</td>
<td>3</td>
<td>Advances: Neurobiology of Mental Disorders</td>
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</table>

**12.14.30.6 Bachelor of Science (B.Sc.) - Major Physiology and Mathematics (77 credits)**

**U1 Required Courses (14 credits)**

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<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tr>
<td>BIOL 200</td>
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<td>Molecular Biology</td>
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<tr>
<td>BIOL 309</td>
<td>3</td>
<td>Mathematical Models in Biology</td>
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<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
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<tr>
<td>PHGY 212</td>
<td>1</td>
<td>Introductory Physiology Laboratory 1</td>
</tr>
<tr>
<td>PHGY 213</td>
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<td>Introductory Physiology Laboratory 2</td>
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One of:

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<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>MATH 223</td>
<td>3</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 247</td>
<td>3</td>
<td>Honours Applied Linear Algebra</td>
</tr>
</tbody>
</table>
U1 Complementary Courses (15 credits)

3 credits, one of:
- BIOC 212 (3) Molecular Mechanisms of Cell Function
- BIOL 201 (3) Cell Biology and Metabolism

6 credits selected as follows:
- Advising Note: PHGY 201 and PHGY 202 will not be offered in 2011-2012.
- PHGY 201* (3) Human Physiology: Control Systems
- PHGY 202* (3) Human Physiology: Body Functions
- PHGY 209 (3) Mammalian Physiology 1
- PHGY 210 (3) Mammalian Physiology 2

3 credits, one of:
- MATH 248 (3) Honours Advanced Calculus
- MATH 314 (3) Advanced Calculus

3 credits, one of:
- MATH 315 (3) Ordinary Differential Equations
- MATH 325 (3) Honours Ordinary Differential Equations

U2 Required Courses (24 credits)

MATH 242 (3) Analysis 1
MATH 243 (3) Analysis 2
MATH 323 (3) Probability
MATH 326 (3) Nonlinear Dynamics and Chaos
PHGY 311 (3) Channels, Synapses & Hormones
PHGY 312 (3) Respiratory, Renal, & Cardiovascular Physiology
PHGY 313 (3) Blood, Gastrointestinal, & Immune Systems Physiology
PHGY 314 (3) Integrative Neuroscience

U2 or U3 Required Courses (6 credits)

MATH 437 (3) Mathematical Methods in Biology
PHYS 413 (3) Physical Basis of Physiology

U3 Required Courses (18 credits)

BMDE 519 (3) Biomedical Signals and Systems
MATH 319 (3) Introduction to Partial Differential Equations
MATH 324 (3) Statistics
PHGY 461D1 (4.5) Experimental Physiology
12.14.30.7 Bachelor of Science (B.Sc.) - Major Physiology and Physics (80 credits)

This program provides a firm foundation in physics, mathematics, and physiology. It is appropriate for students interested in applying methods of the physical sciences to problems in physiology and allied biological sciences.

### U1 Required Courses (17 credits)

* The corequisite BIOL 200, BIOL 201 is waived for this program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
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</thead>
<tbody>
<tr>
<td>MATH 222</td>
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<tr>
<td>PHGY 212*</td>
<td>1</td>
<td>Introductory Physiology Laboratory 1</td>
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<tr>
<td>PHGY 213*</td>
<td>1</td>
<td>Introductory Physiology Laboratory 2</td>
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<tr>
<td>PHYS 230</td>
<td>3</td>
<td>Dynamics of Simple Systems</td>
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<td>PHYS 232</td>
<td>3</td>
<td>Heat and Waves</td>
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<td>PHYS 257</td>
<td>3</td>
<td>Experimental Methods 1</td>
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<td>PHYS 258</td>
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### U2 Required Courses (21 credits)

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<th>Credits</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>MATH 326</td>
<td>3</td>
<td>Nonlinear Dynamics and Chaos</td>
</tr>
<tr>
<td>PHGY 311</td>
<td>3</td>
<td>Channels, Synapses &amp; Hormones</td>
</tr>
<tr>
<td>PHGY 312</td>
<td>3</td>
<td>Respiratory, Renal, &amp; Cardiovascular Physiology</td>
</tr>
<tr>
<td>PHGY 313</td>
<td>3</td>
<td>Blood, Gastrointestinal, &amp; Immune Systems Physiology</td>
</tr>
<tr>
<td>PHGY 314</td>
<td>3</td>
<td>Integrative Neuroscience</td>
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<tr>
<td>PHYS 328</td>
<td>3</td>
<td>Electronics</td>
</tr>
<tr>
<td>PHYS 339</td>
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<td>Measurements Laboratory in General Physics</td>
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### U2 or U3 Required Courses (6 credits)

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<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>MATH 437</td>
<td>3</td>
<td>Mathematical Methods in Biology</td>
</tr>
<tr>
<td>PHYS 413</td>
<td>3</td>
<td>Physical Basis of Physiology</td>
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### U3 Required Courses (21 credits)

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<tr>
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<th>Credits</th>
<th>Course Name</th>
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<tbody>
<tr>
<td>BMDE 519</td>
<td>3</td>
<td>Biomedical Signals and Systems</td>
</tr>
<tr>
<td>PHGY 461D1</td>
<td>4.5</td>
<td>Experimental Physiology</td>
</tr>
<tr>
<td>PHGY 461D2</td>
<td>4.5</td>
<td>Experimental Physiology</td>
</tr>
<tr>
<td>PHYS 333</td>
<td>3</td>
<td>Thermal and Statistical Physics</td>
</tr>
<tr>
<td>PHYS 340</td>
<td>3</td>
<td>Majors Electricity and Magnetism</td>
</tr>
<tr>
<td>PHYS 446</td>
<td>3</td>
<td>Majors Quantum Physics</td>
</tr>
</tbody>
</table>

### U1 Complementary Courses (9 credits)

3 credits, one of:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 223</td>
<td>3</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH 247</td>
<td>3</td>
<td>Honours Applied Linear Algebra</td>
</tr>
</tbody>
</table>
6 credits selected as follows:

* Advising Note: PHGY 201 and PHGY 202 will not be offered in 2011-2012.
** The corequisite BIOL 200, BIOL 201 is waived for this program.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHGY 201*</td>
<td>3</td>
<td>Human Physiology: Control Systems</td>
</tr>
<tr>
<td>PHGY 202*</td>
<td>3</td>
<td>Human Physiology: Body Functions</td>
</tr>
<tr>
<td>PHGY 209</td>
<td>3</td>
<td>Mammalian Physiology 1</td>
</tr>
<tr>
<td>PHGY 210**</td>
<td>3</td>
<td>Mammalian Physiology 2</td>
</tr>
</tbody>
</table>

** U2 Complementary Courses (6 credits) **

3 credits, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>MATH 315</td>
<td>3</td>
<td>Ordinary Differential Equations</td>
</tr>
<tr>
<td>MATH 325</td>
<td>3</td>
<td>Honours Ordinary Differential Equations</td>
</tr>
</tbody>
</table>

3 credits, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 248</td>
<td>3</td>
<td>Honours Advanced Calculus</td>
</tr>
<tr>
<td>MATH 314</td>
<td>3</td>
<td>Advanced Calculus</td>
</tr>
</tbody>
</table>

** 12.14.30.8 Bachelor of Science (B.Sc.) - Honours Physiology (75 credits) **

All admissions to the Honours program will be in U2, and the student must have a U1 GPA of 3.30, with no less than a B in PHGY 209 and PHGY 210. Admission to U3 requires a U2 CGPA of 3.20 with no less than a B in U2 Physiology courses. Decisions for admission to U3 will be heavily influenced by student standing in U2 courses.

The Department reserves the right to restrict the number of entering students in the Honours program. Students who do not maintain Honours standing may transfer their registration to the Major program in Physiology.

The deadline to apply to the Honours program is June 13. Application forms are available in McIntyre 1021. Students should include in their letters telephone numbers where they can be reached during the last week of August. Students are responsible for picking up their letters of decision in McIntyre 1021 no later than one week before classes start.

Graduation: To graduate from the Honours Physiology program, the student will have a CGPA of 3.20 with a mark no less than a B in all Physiology courses. If not previously taken, CHEM 212 Introductory Organic Chemistry 1 must be completed in addition to the 75 program credits.

** Required Courses (60 credits) **

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAT 261</td>
<td>4</td>
<td>Introduction to Dynamic Histology</td>
</tr>
<tr>
<td>BIOC 311</td>
<td>3</td>
<td>Metabolic Biochemistry</td>
</tr>
<tr>
<td>BIOL 200</td>
<td>3</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>3</td>
<td>Basic Genetics</td>
</tr>
<tr>
<td>BIOL 301</td>
<td>4</td>
<td>Cell and Molecular Laboratory</td>
</tr>
<tr>
<td>CHEM 222</td>
<td>4</td>
<td>Introductory Organic Chemistry 2</td>
</tr>
<tr>
<td>PHGY 209</td>
<td>3</td>
<td>Mammalian Physiology 1</td>
</tr>
<tr>
<td>PHGY 210</td>
<td>3</td>
<td>Mammalian Physiology 2</td>
</tr>
<tr>
<td>PHGY 212</td>
<td>1</td>
<td>Introductory Physiology Laboratory 1</td>
</tr>
<tr>
<td>PHGY 213</td>
<td>1</td>
<td>Introductory Physiology Laboratory 2</td>
</tr>
<tr>
<td>PHGY 311</td>
<td>3</td>
<td>Channels, Synapses &amp; Hormones</td>
</tr>
<tr>
<td>PHGY 312</td>
<td>3</td>
<td>Respiratory, Renal, &amp; Cardiovascular Physiology</td>
</tr>
<tr>
<td>PHGY 313</td>
<td>3</td>
<td>Blood, Gastrointestinal, &amp; Immune Systems Physiology</td>
</tr>
</tbody>
</table>
PHGY 314 (3) Integrative Neuroscience
PHGY 351 (3) Research Techniques: Physiology
PHGY 359D1 (.5) Tutorial in Physiology
PHGY 359D2 (.5) Tutorial in Physiology
PHGY 459D1 (3) Physiology Seminar
PHGY 459D2 (3) Physiology Seminar
PHGY 461D1 (4.5) Experimental Physiology
PHGY 461D2 (4.5) Experimental Physiology

**Complementary Courses (15 credits)**

9 credits selected as follows:

3 credits, one of:

- BIOC 212 (3) Molecular Mechanisms of Cell Function
- BIOL 201 (3) Cell Biology and Metabolism

3 credits, one of:

- BIOL 309 (3) Mathematical Models in Biology
- BIOL 373 (3) Biometry

3 credits, one of:

- CHEM 203 (3) Survey of Physical Chemistry
- CHEM 204 (3) Physical Chemistry/Biological Sciences 1

**Upper-Level Physiology (ULP) Courses**

6 credits selected from the Upper-Level Physiology (ULP) course list as follows:

All Physiology courses 400 level and above.

- ANAT 541 (3) Cell and Molecular Biology of Aging
- BIOL 532 (3) Developmental Neurobiology Seminar
- BMDE 519 (3) Biomedical Signals and Systems
- EXMD 502 (3) Advanced Endocrinology 01
- EXMD 503 (3) Advanced Endocrinology 02
- EXMD 506 (3) Advanced Applied Cardiovascular Physiology
- EXMD 507 (3) Advanced Applied Respiratory Physiology
- EXMD 508 (3) Advanced Topics in Respiration
- MIMM 413 (3) Parasitology
- MIMM 414 (3) Advanced Immunology
- MIMM 465 (3) Bacterial Pathogenesis
- MIMM 466 (3) Viral Pathogenesis
- PHGY 524 (3) Chronobiology
- PSYC 470 (3) Memory and Brain
Advances: Neurobiology of Mental Disorders

12.14.30.9 Physiology (PHGY) Related Programs

12.14.30.9.1 Interdepartmental Honours in Immunology

For more information, see section 12.14.17: Immunology Interdepartmental Honours. This program is offered by the Departments of Biochemistry, Microbiology and Immunology, and Physiology. Students interested in the program should contact Dr. C. Piccirillo, Microbiology and Immunology, ciro.piccirillo@mcgill.ca, 514-398-2872; or Dr. Monroe Cohen, Physiology, monroe.cohen@mcgill.ca, 514-398-4342.

12.14.31 Psychiatry (PSYT)

12.14.31.1 Location

1033 Pine Avenue West, Room 105
Montreal, Quebec H3A 1A1
Telephone: 514-398-4176
Website: www.med.mcgill.ca/psychiatry

12.14.31.2 About Psychiatry

There are no B.Sc. programs in Psychiatry, but the PSYT courses listed below are administered by the Faculty of Science and are open to Arts and Science students and to graduate students.

PSYT 199  FYS: Mental Illness and the Brain
PSYT 301  Issues in Drug Dependence (not offered in 2011-2012)
PSYT 500  Advances: Neurobiology of Mental Disorders
PSYT 502  Brain Evolution and Psychiatry
PSYT 503  Mental Health Services and Policy (not offered in 2011-2012)
PSYT 504  Issues in Forensic Mental Health
PSYT 505  Neurobiology of Schizophrenia
PSYT 515  Advanced Studies in Addiction

12.14.32 Psychology (PSYC)

12.14.32.1 Location

Stewart Biology Building, Room W8/1
1205 Dr. Penfield Avenue
Montreal, Quebec H3A 1B1

Telephone: 514-398-6100
Fax: 514-398-4896
Email: info@psych.mcgill.ca
Website: www.psych.mcgill.ca

12.14.32.2 About Psychology

The Department of Psychology offers programs in both Arts and Science. All B.A. programs in Psychology can be found under Faculty of Arts > Psychology (PSYC).

Psychology is the scientific study of mind and behaviour. It is both a social and a biological science. As a social science, psychology studies social interactions. As a biological science, it regards humans as the product of evolution and so studies them in biological perspective, comparing and contrasting human behaviour with that of other species.

The data of psychology are collected within the psychological laboratory by the use of experimental methods in the study of behaviour, and outside the laboratory by systematic observation of the behaviour of humans and animals. The aim is to formulate general principles of perception, learning, motivation, cognition, and social psychology that are relevant to different aspects of human life. Experimentation, laboratory techniques, observational procedures, measurement, and statistical methods are important tools of the psychologist.
Psychology has many interdisciplinary aspects. The study of psychological problems often involves knowledge drawn from other disciplines such as biology, physiology, linguistics, sociology, philosophy, and mathematics. For this reason, a student with varied interests can frequently find a place for these in psychology.

Psychology is a young science so that explanations of the processes underlying observed phenomena are often theoretical and speculative. The major objectives of psychological study are to reduce the discrepancy between theory and fact and to provide better answers about why humans think and behave as they do.

Although a number of undergraduate courses in Psychology have applied implications, applied training is not the purpose of the undergraduate curriculum. Its purpose is to introduce the student to an understanding of the basic core of psychological knowledge, theory, and method, regardless of questions of practical application.

The B.Sc. or B.A. with a Major or Honours degree in Psychology is not a professional qualification. It does not qualify the individual to carry on professional work in psychology. In the province of Quebec the minimum requirement for membership in the Order of Psychologists, the professional association governing the work of psychologists in the province, is a doctoral degree. All students planning to practice in the province of Quebec will be examined on their proficiency in French before being admitted to the professional association. Undergraduate courses in Psychology may prove of considerable value to students planning careers in professional fields other than psychology. These include but are not restricted to medicine, education, social work, human communication sciences, or business and industry.

Students who are interested in psychology as a career must pursue graduate studies. Persons who hold graduate degrees in Psychology, usually the Ph.D., may find employment in universities, research institutes, hospitals, community agencies, government departments, large corporations, or may act as self-employed consultants. At the graduate level, psychology has many specialized branches including social psychology, physiological psychology, experimental psychology, clinical psychology, child psychology, industrial psychology, community psychology, educational psychology, and others.

Requirements for admission to graduate studies in Psychology vary from one university to another and from one country to another. Nonetheless, both the Honours and Major degrees in Psychology may qualify the student for admission to many graduate schools, provided that sufficiently high grades are obtained and, in some cases, that research experience has been obtained. During the U2 year, undergraduate students are strongly advised to verify the admission requirements of various graduate programs. This is to ensure that sufficient time is available for students to complete all necessary requirements for admission to their preferred graduate programs.

The essential differences between the Honours and the Major program are an emphasis on research methodology courses and practice in the Honours program, and that higher academic standards are required of Honours students. Honours students also have an opportunity to work in small groups closely with staff members.

### 12.14.32.3 Information Meetings for New Students

All new students entering the Psychology undergraduate program are required to attend an information meeting prior to registration. Students who have been accepted into a Bachelor of Science program in psychology must attend one of these meetings. Newly admitted students from CEGEPs should attend the information session on Wednesday, June 15 at 10:00 a.m. in room N2/2 in the Stewart Biology Building. There will be an identical information session on Tuesday, August 30 at 11:00 a.m. in room N2/2 in the Stewart Biology Building for all other students and for any CEGEP students who could not attend the earlier meeting. Students accepted into a Bachelor of Arts program must attend a different information meeting. (For details, see [Faculty of Arts > Psychology (PSYC).](#)) At this meeting, Paola Carvajal, the Academic Adviser, will explain the requirements of the Department’s programs. Incoming students will have an opportunity to ask questions and receive advice on how to plan their courses. After this meeting, students will make appointments for individual advising sessions and fill out their Study Plan form for registration.

Entering students must bring their letter of acceptance and a copy of their collegial transcript(s). They will also need access to this publication and a preliminary Class Schedule before their individual advising session. Students will also find the [Psychology Department Handbook](#) helpful. It contains more detailed descriptions of Psychology courses and provides guidelines for how students might pursue particular areas of interest. The handbook is available on the Department website: [www.psych.mcgill.ca/ugrad/ugradm.htm](#).

Students entering the Psychology program in January are strongly encouraged to visit the Academic Adviser, Paola Carvajal, in early December to clarify their course selections.

### 12.14.32.4 Psychology (PSYC) Faculty

**Chair**

D. Zuroff

**Emeritus Professors**

Albert S. Bregman; M.A.(Tor.), Ph.D.(Yale)

Virginia I. Douglas; B.A.(Qu.), M.A., M.S.W., Ph.D.(Mich.)

Wallace E. Lambert; M.A.(Colgate), Ph.D.(N. Carolina), F.R.S.C.

A.A.J. Marley; B.Sc.(Birm.), Ph.D.(Penn.)

Ronald Melzack; M.Sc., Ph.D.(McG.), F.R.S.C. (*E.P. Taylor Emeritus Professor of Psychology*)

Peter M. Milner; B.Sc.(Leeds), M.Sc., Ph.D.(McG.)
Professors

Frances E. Aboud; B.A.(Tor.), M.A., Ph.D.(McG.)
Mark Baldwin; B.A.(Tor.), M.A., Ph.D.(Wat.)
Irving M. Binik; B.A.(NYU), B.H.L.(Jewish Theological Seminary), M.A., Ph.D.(Penn.)
Blaine Ditto; B.S.(Iowa), Ph.D.(Ind.)
Keith B.J. Franklin; B.A., M.A.(Auck.), Ph.D.(Lond.)
Fred H. Genesee; B.A.(W. Ont.), M.A., Ph.D.(McG.)
Richard F. Koestner; B.A., Ph.D.(Roch.)
John Lydon; B.A.(Notre Dame), M.A., Ph.D.(Wat.)
Jeffrey S. Mogil; B.Sc.(Tor.), Ph.D.(Calif.-LA) (E.P. Taylor Professor of Psychology and Canada Research Chair in Genetics of Pain)
Debbie S. Moskowitz; B.S.(Kirkland), M.A., Ph.D.(Conn.)
Yuriko Oshima-Takane; B.A., M.A.(Tokyo), Ph.D.(McG.)
David J. Ostry; B.A.Sc., M.A.Sc., Ph.D.(Tor.)
Caroline Palmer; B.Sc.(Mich.), M.Sc.(Rutg.), Ph.D.(C’nell) (Canada Research Chair in Cognitive Neuropsychology of Performance)
Michael Petrides; B.Sc., M.Sc.(Lond.), Ph.D.(Cant.) (joint appt. with Neurology and Neurosurgery)
Robert O. Pihl; B.A.(Lawrence), Ph.D.(Ariz.)
Barbara B. Sherwin; B.A., M.A., Ph.D.(Cdia) (James McGill Professor, CIHR Distinguished Scientist)
Thomas R. Shultz; B.A.(Minn.), Ph.D.(Yale)
Donald M. Taylor; B.A., M.A., Ph.D.(W. Ont.)
Norman M. White; B.A.(McG.), M.S., Ph.D.(Pitt.)
David C. Zuroff; B.A.(Harv.), M.A., Ph.D.(Conn.)

Associate Professors

A.G. Baker; B.A.(Br. Col.), M.A., Ph.D.(Dal.)
Evan S. Balaban; B.A.(Mich., St.), Ph.D.(Rockefeller)
Baerbel Knaeuper; Dipl., Dr. phil.(U. of Mannheim), Dr. phil. habil.(Free Univ., Berlin)
Daniel J. Levitin; A.B.(Stan.), M.S., Ph.D.(Ore.) (FCAR/FQRNT Strategic Professor, Bell Professor of Psychology and E-Commerce)
Morton J. Mendelson; B.Sc.(McG.), A.M., Ph.D.(Harv.)
Karim Nader; B.Sc., Ph.D.(Tor.) (William Dawson Scholar and Alfred Sloan Fellow, CIHR New Investigator)
Gillian A. O'Driscoll; B.A.(Welles.), M.A., Ph.D.(Harv.) (William Dawson Scholar)
Kristine Onishi; B.A.(Brown), M.A., Ph.D.(ILL)
Maria Pompeiano; M.D., Ph.D.(Pisa)
Zeev Rosberger; B.Sc.(McG.), M.A., Ph.D.(Cdia) (part-time)
Debra Titone; B.A.(NYU), M.A., Ph.D.(SUNY, Binghamton) (Canada Research Chair in Cognitive Neuroscience of Language and Memory)

Assistant Professors

Ian F. Bradley; B.Sc., M.Sc.(Tor.), Ph.D.(Wat.) (part-time)
Yogita Chudusama; B.Sc., Ph.D.(Cardiff Univ.)
Melanie Dirks; B.A.(McM.), M.S., M.Phil., Ph.D.(Yale)
Heungsun Hwang; B.A.(Chung-Ang Univ.), Ph.D.(McG.)
Jelena Ristic; B.A., M.A., Ph.D.(Br. Col.)
Assistant Professors
Hsiu-Ting Yu; B.S.(Taiwan), M.S., M.A., Ph.D.(Ill.-Urbana-Champaign)

Lecturers
Rhonda Amsel; B.Sc., M.Sc.(McG.)
Paola Carvajal; B.Sc.(C’dia), M.A.(McG.)

Associate Members
Clinical Research Institute of Montreal: Terence J. Coderre
Douglas Hospital: Jorge Armony, Suzanne King, Martin Lepage, Jens Pruessner, Howard Steiger
Montreal Neurological Institute: Lesley Fellows, Marilyn Jones-Gotman, Daniel Guittin, Brenda Milner, Edward Ruthazer, Wayne Sossin, Viviane Sziklas, Robert Zatorre
Psychiatry: Frances Abbott, Marco Leyton, Amir Raz
Vision Research Unit (Ophthalmology): Curtis Baker, Robert Hess, Frederick A.A. Kingdom, Kathleen Mullen
Music Faculty: Stephen McAdams

Affiliate Members
David Dunkley; B.Sc.(Tor.), Ph.D.(McG.)
Lisa Koski; B.S.(Tor.), Ph.D.(McG.)

Adjunct Professors
M. Bruck; B.A.(Wheaton), M.A., Ph.D.(McG.)
S. Burstein; B.Sc.(McG.), M.A., Ph.D.(Wat.)
P. Delise; B.Sc., M.Ps., Ph.D.(Montr.)
P. Gregoire; B.A.(College St. Marie), B.Ph., L.Ph., Ph.D.(Montr.)
Z. Pleszewski; M.A., Ph.D.(Poznan)
D. Sookman; B.A.(McG.), M.A.(Guelph), Ph.D.(C’dia)
A. Vouloumanos; B.Sc.(McG.), Ph.D.(Br. Col.)
P. Zelazo; B.A.(Amer. Int'l. Coll.), M.S.(N. Carolina), Ph.D.(Wat.)

Part-time Appointments
Jessey Bernstein; B.A.(McG.), M.A., Ph.D.(Roch.)
Judith LeGallais; B.A., M.A., Ph.D.(McG.)

12.14.32.5 Bachelor of Science (B.Sc.) - Minor Psychology (24 credits)
A minor program in Psychology is available to students registered in any B.Sc. program other than Psychology. This program is intended to complement a student's primary field of study by providing a focused introduction to specialized topics in psychology.
A separate minor concentration exists for students registered in a program in the Faculty of Arts.
The Minor program for Science students requires the completion of 24 credits, of which no more than 6 may overlap with the primary program. All courses in the Minor program must be passed with a minimum grade of C. A prerequisite to the program is PSYC 204 or equivalent.

Complementary Courses (24 credits)
at least 3, but no more than 6, credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 211</td>
<td>(3)</td>
<td>Introductory Behavioural Neuroscience</td>
</tr>
<tr>
<td>PSYC 212</td>
<td>(3)</td>
<td>Perception</td>
</tr>
<tr>
<td>PSYC 213</td>
<td>(3)</td>
<td>Cognition</td>
</tr>
</tbody>
</table>
18-21 credits selected from Psychology courses at the 300 level or above.

**12.14.32.6 Bachelor of Science (B.Sc.) - Liberal Program - Core Science Component Psychology (45 credits)**

This Core Science Component Psychology requires the completion of 45 credits in Psychology, all of which need to be passed with a minimum grade of C. A prerequisite to the program is PSYC 100 or equivalent. Students completing a Liberal Program with a Core Science Component Psychology must also complete at least one breadth component in a second area.

**Recommended Background**

It is expected that most students who enter the Liberal program in Psychology will have taken introductory psychology, biology, and statistics at the collegial level. Recommended CEGEP courses include Psychology 350-101 or 350-102 or equivalent, Biology CEGEP objective 00UK, 00XU or equivalent, Statistics (Mathematics) 201-307 or 201-337 or equivalent. Students must obtain a minimum grade of 75% in their CEGEP-level statistics course to be exempt from PSYC 204. In the first year, those students who have not taken the recommended collegial-level statistics course, or those who have obtained a grade below 75%, must take Psychology PSYC 204. Those who have not taken Introductory Psychology in CEGEP must take PSYC 100.

**Required Course (3 credits)**

PSYC 204 (3) Introduction to Psychological Statistics

**Complementary Courses (42 credits)**

9 credits from:

- PSYC 211 (3) Introductory Behavioural Neuroscience
- PSYC 212 (3) Perception
- PSYC 213 (3) Cognition
- PSYC 215 (3) Social Psychology

**List A**

6 credits in Psychology from List A (Behavioural Neuroscience, Cognition and Quantitive Methods).

* Advising Notes Regarding PSYC 308 and NSCI 201:

PSYC 308 is not currently offered but can be substituted with the equivalent course NSCI 201.

In all cases, PSYC 308 and NSCI 201 should be considered interchangeable with respect to prerequisite, exemption, etc., requirements.

Students who have taken PSYC 308 should not take NSCI 201.

- NSCI 201* (3) Introduction to Neuroscience 2
- PSYC 301 (3) Animal Learning & Theory
- PSYC 302 (3) The Psychology of Pain
- PSYC 310 (3) Intelligence
- PSYC 311 (3) Human Cognition and the Brain
- PSYC 315 (3) Computational Psychology
- PSYC 317 (3) Genes and Behaviour
- PSYC 318 (3) Behavioural Neuroscience 2
- PSYC 329 (3) Introduction to Auditory Cognition
- PSYC 340 (3) Psychology of Language
- PSYC 341 (3) The Psychology of Bilingualism
- PSYC 342 (3) Hormones and Behaviour
- PSYC 352 (3) Cognitive Psychology Laboratory
PSYC 353 (3) Laboratory in Human Perception
PSYC 403 (3) Modern Psychology in Historical Perspective
PSYC 406 (3) Psychological Tests
PSYC 410 (3) Special Topics in Neuropsychology
PSYC 413 (3) Cognitive Development
PSYC 427 (3) Sensorimotor Behaviour
PSYC 444 (3) Sleep Mechanisms and Behaviour
PSYC 451 (3) Human Factors Research and Techniques
PSYC 470 (3) Memory and Brain
PSYC 501 (3) Auditory Perception
PSYC 502 (3) Psychoneuroendocrinology
PSYC 506 (3) Cognitive Neuroscience of Attention
PSYC 510 (3) Statistical Analysis of Tests
PSYC 514 (3) Neurobiology of Learning and Memory
PSYC 522 (3) Neurochemistry and Behaviour
PSYC 526 (3) Advances in Visual Perception
PSYC 529 (3) Music Cognition
PSYC 531 (3) Structural Equation Models
PSYC 532 (3) Cognitive Science
PSYC 536 (3) Correlational Techniques
PSYC 537 (3) Advanced Seminar in Psychology of Language
PSYC 541 (3) Multilevel Modelling
PSYC 545 (3) Topics in Language Acquisition
PSYC 561 (3) Methods: Developmental Psycholinguistics
PSYC 562 (3) Measurement of Psychological Processes

List B
6 credits in Psychology from List B (Social, Health and Developmental Psychology).

PSYC 304 (3) Child Development
PSYC 316 (3) Psychology of Deafness
PSYC 328 (3) Health Psychology
PSYC 331 (3) Inter-Group Relations
PSYC 332 (3) Introduction to Personality
PSYC 333 (3) Personality and Social Psychology
PSYC 337 (3) Introduction: Abnormal Psychology 1
PSYC 338 (3) Introduction: Abnormal Psychology 2
PSYC 343 (3) Language Learning in Children
PSYC 351 (3) Research Methods in Social Psychology
PSYC 408 (3) Principles of Cognitive Behaviour Therapy
PSYC 409 (3) Positive Psychology
PSYC 412 (3) Developmental Psychopathology
PSYC 414 (3) Social Development
PSYC 416 (3) Topics in Child Development
15 credits in Psychology at the 300 level or above.

6 credits in Psychology at the 400 or 500 level.

**12.14.32.7 Bachelor of Science (B.Sc.) - Major Psychology (54 credits)**

Students majoring in Psychology must obtain a minimum grade of C in all 54 credits of the program. A grade lower than C may be made up by taking another equivalent course (if there is one), by successfully repeating the course, or by successfully writing a supplemental examination (if there is one).

**Recommended Background**

It is expected that most students who enter the Major program in Psychology will have taken introductory psychology, biology, and statistics at the collegial level. Recommended CEGEP courses include Psychology 350-101 or 350-102 or equivalent, Biology CEGEP objective 00UK, 00XU or equivalent, Statistics (Mathematics) 201-307 or 201-337 or equivalent. Students must obtain a minimum grade of 75% in their CEGEP-level statistics course. In the first year those students who have not taken the recommended collegial-level statistics course, or those who have obtained a grade below 75%, must take Psychology PSYC 204. Those who have not taken the recommended collegial-level biology should take BIOL 111 or BIOL 112, and those who have not taken Introductory Psychology in college must take PSYC 100.

**U1 Required Courses (12 credits)**

Note: PSYC 100 may be taken as a corequisite with these basic courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 211</td>
<td>3</td>
<td>Introductory Behavioural Neuroscience</td>
</tr>
<tr>
<td>PSYC 212</td>
<td>3</td>
<td>Perception</td>
</tr>
<tr>
<td>PSYC 213</td>
<td>3</td>
<td>Cognition</td>
</tr>
<tr>
<td>PSYC 215</td>
<td>3</td>
<td>Social Psychology</td>
</tr>
</tbody>
</table>

**U1 or U2 Required Course (3 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 305</td>
<td>3</td>
<td>Statistics for Experimental Design</td>
</tr>
</tbody>
</table>

**Complementary Courses (39 credits)**

**List A**

6 credits in Psychology from List A (Behavioural Neuroscience, Cognition and Quantitative Methods).

* Advising Notes Regarding PSYC 308 and NSCI 201:
PSYC 308 is not currently offered but can be substituted with the equivalent course NSCI 201.

In all cases, PSYC 308 and NSCI 201 should be considered interchangeable with respect to prerequisite, exemption, etc., requirements.

Students who have taken PSYC 308 should not take NSCI 201.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSCI 201*</td>
<td>Introduction to Neuroscience 2</td>
</tr>
<tr>
<td>PSYC 301</td>
<td>Animal Learning &amp; Theory</td>
</tr>
<tr>
<td>PSYC 302</td>
<td>The Psychology of Pain</td>
</tr>
<tr>
<td>PSYC 310</td>
<td>Intelligence</td>
</tr>
<tr>
<td>PSYC 311</td>
<td>Human Cognition and the Brain</td>
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<tr>
<td>PSYC 315</td>
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<tr>
<td>PSYC 317</td>
<td>Genes and Behaviour</td>
</tr>
<tr>
<td>PSYC 318</td>
<td>Behavioural Neuroscience 2</td>
</tr>
<tr>
<td>PSYC 329</td>
<td>Introduction to Auditory Cognition</td>
</tr>
<tr>
<td>PSYC 340</td>
<td>Psychology of Language</td>
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<tr>
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<td>Neurobiology of Learning and Memory</td>
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<td>PSYC 529</td>
<td>Music Cognition</td>
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<td>PSYC 531</td>
<td>Structural Equation Models</td>
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<td>Cognitive Science</td>
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<td>PSYC 536</td>
<td>Correlational Techniques</td>
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<td>PSYC 537</td>
<td>Advanced Seminar in Psychology of Language</td>
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<td>PSYC 541</td>
<td>Multilevel Modelling</td>
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<tr>
<td>PSYC 545</td>
<td>Topics in Language Acquisition</td>
</tr>
<tr>
<td>PSYC 561</td>
<td>Methods: Developmental Psycholinguistics</td>
</tr>
<tr>
<td>PSYC 562</td>
<td>Measurement of Psychological Processes</td>
</tr>
</tbody>
</table>

List B
6 credits in Psychology from List B (Social, Health and Developmental Psychology).

PSYC 304 (3) Child Development
PSYC 316 (3) Psychology of Deafness
PSYC 328 (3) Health Psychology
PSYC 331 (3) Inter-Group Relations
PSYC 332 (3) Introduction to Personality
PSYC 333 (3) Personality and Social Psychology
PSYC 337 (3) Introduction: Abnormal Psychology 1
PSYC 338 (3) Introduction: Abnormal Psychology 2
PSYC 343 (3) Language Learning in Children
PSYC 351 (3) Research Methods in Social Psychology
PSYC 408 (3) Principles of Cognitive Behaviour Therapy
PSYC 409 (3) Positive Psychology
PSYC 412 (3) Developmental Psychopathology
PSYC 414 (3) Social Development
PSYC 416 (3) Topics in Child Development
PSYC 436 (3) Human Sexuality and Its Problems
PSYC 471 (3) Human Motivation
PSYC 473 (3) Social Cognition and the Self
PSYC 474 (3) Interpersonal Relationships
PSYC 483 (3) Seminar in Experimental Psychopathology
PSYC 491D1 (3) Advanced Study: Behavioural Disorders
PSYC 491D2 (3) Advanced Study: Behavioural Disorders
PSYC 507 (3) Emotions, Stress, and Illness
PSYC 509 (3) Diverse Clinical Populations
PSYC 511 (3) Infant Competence
PSYC 512 (3) Advanced Personality Seminar
PSYC 528 (3) Vulnerability to Depression
PSYC 530 (3) Applied Topics in Deafness
PSYC 533 (3) International Health Psychology
PSYC 535 (3) Advanced Topics in Social Psychology

6 credits at the 300 level or above.

9 credits in Psychology at the 400 or 500 level.

12 credits at the 300 level or above in any of the following disciplines: Psychology (PSYC), Anatomy and Cell Biology (ANAT), Biology (BIOL), Biochemistry (BIOC), Chemistry (CHEM), Computer Science (COMP), Mathematics (MATH), Physiology (PHGY), Psychiatry (PSYT).

12.14.32.8 Bachelor of Science (B.Sc.) - Honours Psychology (60 credits)

Honours in Psychology prepares students for graduate study, and so emphasizes practice in the research techniques which are used in graduate school and professionally later on. Students are normally accepted into Honours at the beginning of their U2 year, and the two-year sequence of Honours courses continues through U3.

Recommended Background
It is expected that most students who enter the Honours program in Psychology will have taken introductory psychology, biology and statistics at the collegial level. Recommended CEGEP courses include Psychology 350-101 or 350-102 or equivalent, Biology CEGEP objective 00UK, 00XU or equivalent, Statistics (Mathematics) 201-307 or 201-337 or equivalent. Students must obtain a minimum grade of 75% in their CEGEP-level statistics course. In the first year, those students who have not taken the recommended collegial-level statistics course, or those who have obtained a grade below 75%, must take Psychology PSYC 204. Those who have not taken the recommended collegial-level biology should take BIOL 111 or BIOL 112, and those who have not taken Introductory Psychology in CEGEP must take PSYC 100.

Program Prerequisites

Admission to Honours is selective. Students with a cumulative grade point average of 3.00 or better are eligible to apply however, since enrolment is limited, the usual GPA for admission to this program is 3.50. Students must complete 27 graded credits in their U1 academic year to be eligible to apply to the Honours program.

Students must complete the following courses in their U1 year to be eligible to apply to the Honours program: PSYC 204, PSYC 211, PSYC 212, PSYC 213 and PSYC 215. Students are advised to complete PSYC 305 in their U1 year. Once in the Honours program, the student must obtain a GPA of 3.00 in the U2 year in order to continue in the program for U3. Honours students are encouraged to take at least 27 graded credits per academic year. This is also usually the minimum number of credits required to be eligible for fellowships and awards.

U1 Required Courses (12 credits)

Note: PSYC 100 may be taken as a corequisite with these basic courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>PSYC 211</td>
<td>3</td>
<td>Introductory Behavioural Neuroscience</td>
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<tr>
<td>PSYC 212</td>
<td>3</td>
<td>Perception</td>
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<td>PSYC 213</td>
<td>3</td>
<td>Cognition</td>
</tr>
<tr>
<td>PSYC 215</td>
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<td>Social Psychology</td>
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U1 or U2 Required Course (3 credits)

<table>
<thead>
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<td>PSYC 305</td>
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<td>Statistics for Experimental Design</td>
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U2 Required Courses (9 credits)

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<td>PSYC 380D2</td>
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<td>Honours Research Project Seminar</td>
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U3 Required Course (3 credits)

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<tbody>
<tr>
<td>PSYC 482</td>
<td>3</td>
<td>Advanced Honours Seminar</td>
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Complementary Courses (33 credits)

12 credits to be selected from the list below and any Psychology course at the 500 level.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PSYC 403</td>
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<td>Modern Psychology in Historical Perspective</td>
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<tr>
<td>PSYC 483</td>
<td>3</td>
<td>Seminar in Experimental Psychopathology</td>
</tr>
<tr>
<td>PSYC 495</td>
<td>6</td>
<td>Psychology Research Project 2</td>
</tr>
<tr>
<td>PSYC 496</td>
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<td>Senior Honours Research 1</td>
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<tr>
<td>PSYC 497</td>
<td>6</td>
<td>Senior Honours Research 2</td>
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<td>PSYC 498D1</td>
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<td>Senior Honours Research</td>
</tr>
<tr>
<td>PSYC 498D2</td>
<td>4.5</td>
<td>Senior Honours Research</td>
</tr>
</tbody>
</table>

List A

6 credits in Psychology from List A (Behavioural Neuroscience, Cognition and Quantitive Methods).

* Advising Notes Regarding PSYC 308 and NSCI 201:

PSYC 308 is not currently offered but can be substituted with the equivalent course NSCI 201.
In all cases, PSYC 308 and NSCI 201 should be considered interchangeable with respect to prerequisite, exemption, etc., requirements. Students who have taken PSYC 308 should not take NSCI 201.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>NSCI 201*</td>
<td>Introduction to Neuroscience 2</td>
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<tr>
<td>PSYC 301</td>
<td>Animal Learning &amp; Theory</td>
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<td>PSYC 302</td>
<td>The Psychology of Pain</td>
</tr>
<tr>
<td>PSYC 310</td>
<td>Intelligence</td>
</tr>
<tr>
<td>PSYC 311</td>
<td>Human Cognition and the Brain</td>
</tr>
<tr>
<td>PSYC 315</td>
<td>Computational Psychology</td>
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<tr>
<td>PSYC 317</td>
<td>Genes and Behaviour</td>
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<tr>
<td>PSYC 329</td>
<td>Introduction to Auditory Cognition</td>
</tr>
<tr>
<td>PSYC 340</td>
<td>Psychology of Language</td>
</tr>
<tr>
<td>PSYC 341</td>
<td>The Psychology of Bilingualism</td>
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<tr>
<td>PSYC 342</td>
<td>Hormones and Behaviour</td>
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<tr>
<td>PSYC 352</td>
<td>Cognitive Psychology Laboratory</td>
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<td>Cognitive Development</td>
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<td>Sensorimotor Behaviour</td>
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<td>Sleep Mechanisms and Behaviour</td>
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<td>Human Factors Research and Techniques</td>
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<td>Auditory Perception</td>
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<td>PSYC 502</td>
<td>Psychoneuroendocrinology</td>
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<td>Cognitive Neuroscience of Attention</td>
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<td>Statistical Analysis of Tests</td>
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<td>Neurobiology of Learning and Memory</td>
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<td>Advances in Visual Perception</td>
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<td>Structural Equation Models</td>
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<td>Cognitive Science</td>
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<td>Advanced Seminar in Psychology of Language</td>
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<td>Multilevel Modelling</td>
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<tr>
<td>PSYC 561</td>
<td>Methods: Developmental Psycholinguistics</td>
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<tr>
<td>PSYC 562</td>
<td>Measurement of Psychological Processes</td>
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**List B**

6 credits in Psychology from List B (Social, Health and Developmental Psychology)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tr>
<td>PSYC 304</td>
<td>(3)</td>
<td>Child Development</td>
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<td>PSYC 316</td>
<td>(3)</td>
<td>Psychology of Deafness</td>
</tr>
<tr>
<td>PSYC 328</td>
<td>(3)</td>
<td>Health Psychology</td>
</tr>
<tr>
<td>PSYC 331</td>
<td>(3)</td>
<td>Inter-Group Relations</td>
</tr>
<tr>
<td>PSYC 332</td>
<td>(3)</td>
<td>Introduction to Personality</td>
</tr>
<tr>
<td>PSYC 333</td>
<td>(3)</td>
<td>Personality and Social Psychology</td>
</tr>
<tr>
<td>PSYC 337</td>
<td>(3)</td>
<td>Introduction: Abnormal Psychology 1</td>
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<td>PSYC 338</td>
<td>(3)</td>
<td>Introduction: Abnormal Psychology 2</td>
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<tr>
<td>PSYC 343</td>
<td>(3)</td>
<td>Language Learning in Children</td>
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<tr>
<td>PSYC 351</td>
<td>(3)</td>
<td>Research Methods in Social Psychology</td>
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<td>PSYC 408</td>
<td>(3)</td>
<td>Principles of Cognitive Behaviour Therapy</td>
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<td>(3)</td>
<td>Positive Psychology</td>
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<td>(3)</td>
<td>Developmental Psychopathology</td>
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<td>PSYC 414</td>
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<td>(3)</td>
<td>Topics in Child Development</td>
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<td>(3)</td>
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<td>PSYC 471</td>
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<td>Social Cognition and the Self</td>
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<td>(3)</td>
<td>Interpersonal Relationships</td>
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<tr>
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<td>Advanced Study: Behavioural Disorders</td>
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<td>(3)</td>
<td>Emotions, Stress, and Illness</td>
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<td>(3)</td>
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<td>(3)</td>
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<td>PSYC 512</td>
<td>(3)</td>
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<td>(3)</td>
<td>Vulnerability to Depression</td>
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<td>(3)</td>
<td>Applied Topics in Deafness</td>
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<td>PSYC 533</td>
<td>(3)</td>
<td>International Health Psychology</td>
</tr>
<tr>
<td>PSYC 535</td>
<td>(3)</td>
<td>Advanced Topics in Social Psychology</td>
</tr>
</tbody>
</table>

9 credits at the 300 level or above selected from:

- Anatomy and Cell Biology (ANAT),
- Biochemistry (BIOC),
- Biology (BIOL),
- Chemistry (CHEM),
- Computer Science (COMP),
- Mathematics (MATH),
- Physiology (PHGY),
- Psychiatry (PYST),
- Psychology (PSYC).

12.14.32.9 Admission Requirements to the Bachelor of Science (B.Sc.) - Honours Psychology

Applications can be obtained from the Undergraduate Office of the Department of Psychology, Room N7/9A, Stewart Biology Building. The applications must be completed and returned to the Undergraduate Office by August 1 for September admission. Candidates will be advised of the Department’s decision via email before classes begin in September.

Students should note that awarding of the Honours degree will depend on both cumulative grade point average and a minimum grade of B on PSYC 380D1/380D2 and PSYC 482. “First Class Honours” is awarded to students who obtain a minimum cumulative grade point average of 3.50, and a minimum program GPA of 3.50 and a minimum grade of A- in the required Honours courses, namely PSYC 380D1/380D2 and PSYC 482. “Honours” is awarded to students with a minimum cumulative grade point average of 3.00, and a minimum program GPA of 3.00 and a minimum grade of B in the required Honours courses, namely PSYC 380D1/380D2 and PSYC 482. Moreover, the awarding of the Honours degree normally requires completion of two full years of study, U2 and U3, in the Honours program. Students with particularly strong academic records may be admitted for the U3 year only on the basis of their marks and research experience. These students must complete all Honours program requirements.

For more information, see section 12.14.32.8: Bachelor of Science (B.Sc.) - Honours Psychology (60 credits).
12.14.33 Redpath Museum (REDM)

12.14.33.1 Location

Redpath Museum
859 Sherbrooke Street West
Montreal, Quebec H3A 2K6

Telephone: 514-398-4086 ext. 3188
Fax: 514-398-3185
Website: www.mcgill.ca/redpath

12.14.33.2 About the Redpath Museum

The Redpath Museum exists to foster the study of the history and diversity of the natural world. Its mandate includes biological, geological and cultural diversity, and science education. It conducts academic teaching and research activities and also provides academic services to other units. The Redpath Museum offers a B.Sc. Minor program in Natural History. REDM courses listed below are considered as ones taught by the Faculty of Science.

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>REDM 396</td>
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<td>REDM 399</td>
<td>Science Writing</td>
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<td>REDM 400</td>
<td>Science and Museums</td>
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<tr>
<td>REDM 405</td>
<td>Natural History of East Africa</td>
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<tr>
<td>REDM 410</td>
<td>Writing Research Articles</td>
</tr>
</tbody>
</table>

12.14.33.3 Redpath Museum (REDM) Faculty

**Director**

David M. Green

**Emeritus Professor**

Robert L. Carroll; B.Sc.(Mich.), Ph.D.(Harv.), F.R.S.C., F.L.S.

**Professor**

David M. Green; B.Sc.(Br. Col.), M.Sc., Ph.D.(Guelph), F.L.S.

**Associate Professors**

Brian J. Alters; B.Sc., Ph.D.(USC) *(Tomlinson Chair in Science Education) (Sir William Dawson Scholar)*
Andrew Hendry; B.Sc.(Vic., BC), M.Sc., Ph.D.(Wash.) *(joint appt. with Biology)*
Hans C.E. Larsson; B.Sc.(McG.), Ph.D.(Chic.) *(CRC Tier 2 Chair in Macroevolution)*
Anthony Ricciardi; B.Sc.(Agr.), M.Sc., Ph.D.(McG.) *(joint appt. with McGill School of Environment)*

**Assistant Professors**

Claire de Mazancourt; M.Sc.(École des Mines), DEA, Ph.D.(Paris VI)
Virginie Millien; Maîtrise(Paris VI), DEA, Ph.D.(Montpellier II)

**Faculty Lecturer**

Linda Cooper; B.A.(C’dia), M.A.(McM.)

**Associate Members**

Biology: Graham A.C. Bell, Lauren J. Chapman
Associate Members

Earth & Planetary Sciences: Jeanne Paquette
McGill School of Environment: Colin A. Chapman

Adjunct Professors

Robert Holmes
Henry M. Reiswig
Michael Woloch

12.14.33.4 Bachelor of Science (B.Sc.) - Minor Natural History (24 credits)

The Minor Natural History involves the exploration of the natural world via specimen-based studies, object-oriented investigations and field studies. Museum collections are used to provide hands-on experience with real objects and specimens. The required course brings students to the Redpath Museum and other McGill natural science museums and exposes them to natural history methodologies and the value of specimen-based studies. Complementary course lists are drawn from a variety of disciplines to emphasize breadth and integration with the inclusion of specimen- or object-based courses and field courses in zoology, botany, and earth and environmental sciences. To ensure breadth, students are required to choose courses from among these lists. A compulsory field course component rounds out the program.

Required Course (3 credits)

REDM 400 (3) Science and Museums

Complementary Courses (21 credits)

Students select 21 credits from among four course lists (A (Zoology), B (Botany), C (Earth and Environmental Sciences), and D (Field Courses)) with the following specifications.

- At least 3 credits and no more than 9 credits from each of Lists A, B, and C.
- At least 3 credits from List D.
- No more than 3 credits from any one list may be at the 200 level.

Note: Students may take up to a maximum of 9 credits of courses outside the Faculties of Arts and of Science.

List A: Zoology

* Note: BIOL 205 and BIOL 215 may be applied to either List A or List B.

** Note: Students may take either ENTO 330 or one of the cross-listed courses BIOL 350 and ENTO 350 as these courses have similar content.

AEBI 211 (3) Organisms 2
ANTH 312 (3) Zooarchaeology
BIOL 205* (3) Biology of Organisms
BIOL 215* (3) Introduction to Ecology and Evolution
BIOL 305 (3) Animal Diversity
BIOL 341 (3) History of Life
BIOL 350** (3) Insect Biology and Control
BIOL 352 (3) Vertebrate Evolution
BIOL 418 (3) Freshwater Invertebrate Ecology
BIOL 427 (3) Herpetology
BIOL 463 (3) Mammalian Evolution
ENTO 330** (3) Insect Biology
ENTO 350** (3) Insect Biology and Control
ENTO 440 (3) Insect Diversity
ENTO 535 (3) Aquatic Entomology

McGill University, Undergraduate Programs, Courses and University Regulations, 2011-2012 (Published August 17, 2011)
Invertebrate Paleontology
Natural History of Vertebrates
Mammalogy
Ornithology

List B: Botany

* Note: BIOL 205 and BIOL 215 may be applied to either List A or List B.

AEBI 210 (3) Organisms 1
BIOL 205* (3) Biology of Organisms
BIOL 215* (3) Introduction to Ecology and Evolution
BIOL 240 (3) Monterey Flora
BIOL 355 (3) Trees: Ecology & Evolution
PLNT 304 (3) Biology of Fungi
PLNT 353 (3) Plant Structure and Function
PLNT 358 (3) Flowering Plant Diversity
PLNT 460 (3) Plant Ecology

List C: Earth and Environmental Sciences

BIOL 540 (3) Ecology of Species Invasions
ENVR 200 (3) The Global Environment
ENVR 202 (3) The Evolving Earth
EPSC 210 (3) Introductory Mineralogy
EPSC 233 (3) Earth and Life History
ESYS 200 (3) Earth System Processes
ESYS 300 (3) Investigating the Earth System
GEOG 203 (3) Environmental Systems
GEOG 272 (3) Earth's Changing Surface
GEOG 470 (3) Wetlands
GEOG 550 (3) Historical Ecology Techniques

List D: Field Studies

* Note: Students may take either of the cross-listed courses NRSC 405 and REDM 405, but not both.

Students may also take other field courses with the permission of the Program Adviser.

BIOL 331 (3) Ecology/Behaviour Field Course
BIOL 334 (3) Applied Tropical Ecology
BIOL 335 (3) Marine Mammals
BIOL 573 (3) Vertebrate Palaeontology Field Course
ENTO 340 (3) Field Entomology
EPSC 231 (3) Field School 1
NRSC 405* (3) Natural History of East Africa
REDM 405* (3) Natural History of East Africa
WILD 475 (3) Desert Ecology
12.14.34 Science or Mathematics for Teachers

12.14.34.1 Location

Dawson Hall, Room 107
853 Sherbrooke Street West
Montreal, Quebec H3A 2T6

Fax: 514-398-2157
Email: pete.barry@mcgill.ca
Website: www.mcgill.ca/scienceforteachers

12.14.34.2 About Science or Mathematics for Teachers

The training and certification of school teachers has traditionally been the responsibility of the Faculty of Education and requires the completion of a Bachelor of Education, subject to Ministère de l’Éducation, du Loisir et du Sport (MELS) regulations. The Faculties of Education and of Science have introduced a number of programs for students who wish to combine Science or Mathematics with Education at McGill. These include the Minor in Education for Science Students, and the Concurrent B.Sc. and B.Ed. The traditional Bachelor of Education, Secondary Program, Science and Technology, or Secondary Program, Mathematics is also available within the Faculty of Education; see Faculty of Education > Overview of Programs (Integrated Studies in Education).

The Minor allows Science students to develop or explore an interest in Education without committing themselves to completing a B.Ed. degree. Science students who have taken this Minor will have completed a substantial number of the necessary credits for the B.Ed. degree should they wish to enrol in that program. The Minor also allows the possibility of transferring into the Concurrent B.Sc. and B.Ed. For details, see section 12.14.34.4: Bachelor of Science (B.Sc.) - Minor Education for Science Students (18 credits).

The Concurrent B.Sc. and B.Ed. is intended as a very rigorous but rewarding alternative to taking the B.Sc. and the B.Ed. in sequence. It is specifically designed to prepare teacher/scientists and is aligned with the requirements of the Quebec Ministère de l’Éducation, du Loisir et du Sport. It has been designed to provide students with the opportunity to attain both a B.Sc. degree and a B.Ed. degree at the same time. It is highly structured and closely integrated so as to satisfy the academic requirements of both degrees.

To be admitted, candidates must satisfy the admission requirements of both faculties. Normally, students will be admitted to both components of the Concurrent B.Sc. and B.Ed. simultaneously. It is possible for students to apply for transfer into this program at any time during their B.Sc. or B.Ed. program. However, because this is a concurrent program, both degrees must be granted at the same convocation. After admission, students should contact one of the coordinators to discuss course selection and scheduling.

Students in the Concurrent B.Sc. and B.Ed. may apply to transfer to either a conventional B.Sc. or a conventional B.Ed. program. To do so, they must submit a Faculty Transfer Application to the appropriate Student Affairs Office. The decision will be based on their grades in the relevant component of the Concurrent program. Students who do transfer to a conventional program may not transfer back to the Concurrent program.

The two components of the Concurrent B.Sc. and B.Ed. are the B.Ed. Secondary Program (120 credits) and one of the B.Sc. programs for teachers (90 credits, or 120 credits for students who have not completed the basic sciences). They are combined in such a way that students complete 135 or 165 credits to fulfill all the requirements for graduation for both the B.Ed. and the B.Sc. These combinations are created exceptionally and exclusively for the Concurrent B.Sc. and B.Ed. For more detailed information about the Concurrent program, particularly how some elements are double-counted so as to satisfy the requirements of both the Faculty of Education and the Faculty of Science, see the program website: www.mcgill.ca/scienceforteachers.

Details of the nine different combinations, including an identification of the elements that are double-counted, are found at the links below. Eight combinations for Science have been specifically designed to align with the teachable subject areas in Education. Each incorporates one Major concentration and one Minor. Note that Major concentrations are not the same as Major programs. The Mathematics combination includes the Major, not the Major concentration, in Mathematics.

- section 5.10.10: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Cell/Molecular with Minor Chemistry for Teachers (135 credits)
- section 5.10.12: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Organismal with Minor Chemistry for Teachers (135 credits)
- section 5.10.11: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Cell/Molecular with Minor Physics for Teachers (135 credits)
- section 5.10.13: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Organismal with Minor Physics for Teachers (135 credits)
- section 5.10.14: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Chemistry with Minor Biology for Teachers (135 credits)
- section 5.10.15: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Chemistry with Minor Physics for Teachers (135 credits)
- section 5.10.18: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Mathematics for Teachers (135 credits)
- section 5.10.16: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Physics with Minor Biology for Teachers (135 credits)
- section 5.10.17: Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Physics with Minor Chemistry for Teachers (135 credits)
12.14.34.3 Science or Mathematics for Teachers Faculty

Concurrent B.Sc. and B.Ed.

Coordinator – Science
Pete Barry
Telephone: 514-398-3202

Coordinator – Education
G. Seiler
Telephone: 514-398-7106

Minor in Education for Science Students

Program Adviser
Joan Barrett
Student Affairs Office, Faculty of Education
General Information: 514-398-7042
Website: www.mcgill.ca/edu-sao/minors

12.14.34.4 Bachelor of Science (B.Sc.) - Minor Education for Science Students (18 credits)

This Minor allows Science students to develop or explore an interest in Education without committing themselves to completing a B.Ed. degree. Science students who have taken this Minor in Education will have completed a substantial number of the necessary credits for the B.Ed. degree should they wish to enrol in that program. The Minor also allows the possibility of transferring into the Concurrent B.Sc. and B.Ed. program, since the 18 credits for the Minor, with the exception of EDEM 220, are also among the Education courses required in this dual degree program. Equally, students having completed a B.Sc. degree, including the Minor, whose content substantially matches that of one of the Concurrent B.Sc. and B.Ed. combinations are likely eligible for a substantial number of advanced standing credits, as specified by the Faculty of Education.

For more information please contact:
Joan Barrett
Student Affairs Office, Faculty of Education
General Information: 514-398-7042
Website: http://www.mcgill.ca/edu-sao/minors

Required Course (3 credits)

EDPE 300 (3) Educational Psychology

Complementary Courses (15 credits)

9 credits selected from:

One of:

EDEC 233 (3) First Nations and Inuit Education
EDEC 248 (3) Multicultural Education
EDEC 249 (3) Global Education and Social Justice

One of:

EDEC 260 (3) Philosophical Foundations
EDEC 261 (3) Philosophy of Catholic Education
One of:

- EDEC 247 (3) Policy Issues in Quebec Education
- EDEM 220 (3) Contemporary Issues in Education

6 credits from the list below:

* Note: Students select either EDES 335 or EDES 353.

- EDEC 262 (3) Media, Technology and Education
- EDES 335* (3) Teaching Secondary Science 1
- EDES 353* (3) Teaching Secondary Mathematics 1
- EDPE 304 (3) Measurement and Evaluation
- EDPI 309 (3) Exceptional Students

**12.14.34.5 Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Cell/Molecular with Minor Chemistry for Teachers (135 credits)**

The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Cell/Molecular with Minor Chemistry for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfill all the requirements for graduation for both the B.Sc. and the B.Ed.

Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l’Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

The Major Concentration Biology - Cell/Molecular with Minor Chemistry is one of the nine variations of the program and allows students to focus their Science degree in Cell/Molecular Biology with a subspecialization in Chemistry.

To fulfill the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:

- (30 credits of Science Freshman Program (for students admitted without basic sciences))
- 60 credits of Education Component
- 69 credits of Science Component consisting of:
  - 36 credits of Major Concentration Biology - Cell/Molecular
  - 18 credits of Minor Chemistry
  - 15 credits of Additional Science Courses
- 6 credits of Electives, of which at least 3 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.

For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

**B.Sc. Freshman Program**

Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUA) to obtain advice and approval of their course selection. Full details are available on the SOUSA website at http://www.mcgill.ca/science/sousa. Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.

Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science courses, selected as follows:

**General Math and Science Breadth**

Six of the Freshman courses must satisfy one of the following:

- Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;

or
Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

Science Complementary

The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:

1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.

2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.

3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/specific/.

4. The maximum number of courses per term, required, complementary, and elective, is five.

List of Approved Freshman Science Courses

Select the approved courses according to the instructions above.

Note:

* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)
* CHEM 120 (not open to students who have taken CHEM 115)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 111</td>
<td>3</td>
<td>Principles: Organismal Biology</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>3</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>4</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 115*</td>
<td>4</td>
<td>Accelerated General Chemistry: Giants in Science</td>
</tr>
<tr>
<td>CHEM 120*</td>
<td>4</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>COMP 202</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>ESYS 104</td>
<td>3</td>
<td>The Earth System</td>
</tr>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>PSYC 100</td>
<td>3</td>
<td>Introduction to Psychology</td>
</tr>
</tbody>
</table>

First calculus course, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 139</td>
<td>4</td>
<td>Calculus 1 with Precalculus</td>
</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 150</td>
<td>4</td>
<td>Calculus A</td>
</tr>
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</table>

Second calculus course, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>MATH 151</td>
<td>4</td>
<td>Calculus B</td>
</tr>
</tbody>
</table>

First physics course, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 101</td>
<td>4</td>
<td>Introductory Physics - Mechanics</td>
</tr>
<tr>
<td>PHYS 131</td>
<td>4</td>
<td>Mechanics and Waves</td>
</tr>
</tbody>
</table>

Second physics course, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 102</td>
<td>4</td>
<td>Introductory Physics - Electromagnetism</td>
</tr>
<tr>
<td>PHYS 142</td>
<td>4</td>
<td>Electromagnetism and Optics</td>
</tr>
</tbody>
</table>
Electives

Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at http://www.mcgill.ca/science/sousa/new_students/club/bsc_freshman/approved/. Certain courses offered by other faculties may also be taken, but some restrictions apply.

Consult the SOUSA website at http://www.mcgill.ca/science/sousa/continuing_students/bsc/outside/ for more information about taking courses from other faculties.

Education Component (60 credits)

60 credits of Education Component consisting of:

- 54 credits of required courses
- 6 credits of complementary courses

**Required Courses**

54 credits

* Note: The courses marked with an asterix are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman year.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 201</td>
<td>1</td>
<td>First Year Professional Seminar</td>
</tr>
<tr>
<td>EDEC 215</td>
<td>0</td>
<td>English Language Requirement</td>
</tr>
<tr>
<td>EDEC 247*</td>
<td>3</td>
<td>Policy Issues in Quebec Education</td>
</tr>
<tr>
<td>EDEC 254</td>
<td>1</td>
<td>Second Professional Seminar (Secondary)</td>
</tr>
<tr>
<td>EDEC 262*</td>
<td>3</td>
<td>Media, Technology and Education</td>
</tr>
<tr>
<td>EDEC 351</td>
<td>2</td>
<td>Third Professional Seminar (Secondary)</td>
</tr>
<tr>
<td>EDEC 404</td>
<td>3</td>
<td>Fourth Year Professional Seminar (Sec)</td>
</tr>
<tr>
<td>EDES 335</td>
<td>3</td>
<td>Teaching Secondary Science 1</td>
</tr>
<tr>
<td>EDES 350</td>
<td>3</td>
<td>Classroom Practices (Secondary)</td>
</tr>
<tr>
<td>EDES 435</td>
<td>3</td>
<td>Teaching Secondary Science 2</td>
</tr>
<tr>
<td>EDFE 200</td>
<td>2</td>
<td>First Field Experience (K/Elem &amp; Secondary)</td>
</tr>
<tr>
<td>EDFE 254</td>
<td>3</td>
<td>Second Field Experience (Secondary)</td>
</tr>
<tr>
<td>EDFE 351</td>
<td>8</td>
<td>Third Field Experience (Secondary)</td>
</tr>
<tr>
<td>EDFE 451</td>
<td>7</td>
<td>Fourth Field Experience (Secondary)</td>
</tr>
<tr>
<td>EDPE 300*</td>
<td>3</td>
<td>Educational Psychology</td>
</tr>
<tr>
<td>EDPE 304</td>
<td>3</td>
<td>Measurement and Evaluation</td>
</tr>
<tr>
<td>EDPI 309*</td>
<td>3</td>
<td>Exceptional Students</td>
</tr>
<tr>
<td>EDPI 341</td>
<td>3</td>
<td>Instruction in Inclusive Schools</td>
</tr>
</tbody>
</table>

**Complementary Courses**

6 credits selected as follows:

* Note: The courses marked with an asterix are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 233*</td>
<td>3</td>
<td>First Nations and Inuit Education</td>
</tr>
<tr>
<td>EDEC 248*</td>
<td>3</td>
<td>Multicultural Education</td>
</tr>
<tr>
<td>EDEC 249*</td>
<td>3</td>
<td>Global Education and Social Justice</td>
</tr>
</tbody>
</table>
3 credits, one of the two following courses:

- EDEC 260* (3) Philosophical Foundations
- EDEC 261* (3) Philosophy of Catholic Education

Major Concentration Biology - Cell/Molecular (36 credits)

The Major Concentration Biology - Cell/Molecular is a planned sequence of courses designed to permit a degree of specialization in cell/molecular biology.

Advising Note: Freshman students should be aware that PHYS 101 and/or PHYS 102 are required for some of the courses in the major and minor concentrations in Biology.

Required Courses

25 credits selected as follows:

- BIOL 200 (3) Molecular Biology
- BIOL 201 (3) Cell Biology and Metabolism
- BIOL 202 (3) Basic Genetics
- BIOL 205 (3) Biology of Organisms
- BIOL 215 (3) Introduction to Ecology and Evolution
- BIOL 300 (3) Molecular Biology of the Gene
- BIOL 301 (4) Cell and Molecular Laboratory
- BIOL 303 (3) Developmental Biology

Complementary Courses

At least 11 credits selected from:

- BIOL 306 (3) Neural Basis of Behaviour
- BIOL 313 (3) Eukaryotic Cell Biology
- BIOL 314 (3) Molecular Biology of Oncogenes
- BIOL 370 (3) Human Genetics Applied
- BIOL 373 (3) Biometry
- BIOL 413 (1) Directed Reading
- BIOL 568 (3) Topics on the Human Genome
- BIOL 575 (3) Human Biochemical Genetics

or other appropriate course at the 300 level or higher with the permission of an adviser.

Minor Chemistry (18 credits)

Required Courses

18 credits selected as follows:

* Note: denotes courses with CEGEP equivalents.

Substitutions for these by more advanced courses may be made at the discretion of the Adviser.

- CHEM 203 (3) Survey of Physical Chemistry
- CHEM 212* (4) Introductory Organic Chemistry 1
- CHEM 222* (4) Introductory Organic Chemistry 2
- CHEM 253 (1) Introductory Physical Chemistry 1 Laboratory
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 281</td>
<td>(3)</td>
<td>Inorganic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 287</td>
<td>(2)</td>
<td>Introductory Analytical Chemistry</td>
</tr>
<tr>
<td>CHEM 297</td>
<td>(1)</td>
<td>Introductory Analytical Chemistry Laboratory</td>
</tr>
</tbody>
</table>

**Additional Science Courses**

15 credits selected as follows:

12 credits:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 210</td>
<td>(3)</td>
<td>Perspectives of Science</td>
</tr>
<tr>
<td>CHEM 381</td>
<td>(3)</td>
<td>Inorganic Chemistry 2</td>
</tr>
<tr>
<td>MATH 203</td>
<td>(3)</td>
<td>Principles of Statistics 1</td>
</tr>
<tr>
<td>MATH 222</td>
<td>(3)</td>
<td>Calculus 3</td>
</tr>
</tbody>
</table>

plus 3 credits, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 180</td>
<td>(3)</td>
<td>World of Chemistry: Environment</td>
</tr>
<tr>
<td>CHEM 181</td>
<td>(3)</td>
<td>World of Chemistry: Food</td>
</tr>
<tr>
<td>CHEM 182</td>
<td>(3)</td>
<td>World of Chemistry: Technology</td>
</tr>
<tr>
<td>CHEM 183</td>
<td>(3)</td>
<td>World of Chemistry: Drugs</td>
</tr>
</tbody>
</table>

**Electives (6 credits)**

6 credits, of which at least 3 credits must be Science Electives.

The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.

**12.14.34.6 Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Organismal with Minor Chemistry for Teachers (135 credits)**

The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Organismal with Minor Chemistry for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfil all the requirements for graduation for both the B.Sc. and the B.Ed.

Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

The Major Concentration Biology - Organismal with Minor Chemistry is one of the nine variations of the program and allows students to focus their Science degree in Organismal Biology with a subspecialization in Chemistry.

To fulfil the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:

- (30 credits of Science Freshman Program (for students admitted without basic sciences))
- 60 credits of Education Component
- 69 credits of Science Component consisting of:
  - 36 credits of Major Concentration Biology - Organismal
  - 18 credits of Minor Chemistry
  - 15 credits of Additional Science Courses
- 6 credits of Electives, of which at least 3 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.

For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

**B.Sc. Freshman Program**
Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUUSA) to obtain advice and approval of their course selection. Full details are available on the SOUSA website at http://www.mcgill.ca/science/sousa. Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.

Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science courses, selected as follows:

**General Math and Science Breadth**

Six of the Freshman courses must satisfy one of the following:

Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;

or

Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

**Science Complementary**

The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:

1. Students who have not studied all of Biology, Chemistry and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.

2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.

3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/bsc/freshman.

4. The maximum number of courses per term, required, complementary, and elective, is five.

**List of Approved Freshman Science Courses**

Select the approved courses according to the instructions above.

Note:

* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)

* CHEM 120 (not open to students who have taken CHEM 115)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 111</td>
<td>3</td>
<td>Principles: Organismal Biology</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>3</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>4</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 115*</td>
<td>4</td>
<td>Accelerated General Chemistry: Giants in Science</td>
</tr>
<tr>
<td>CHEM 120*</td>
<td>4</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>COMP 202</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>ESYS 104</td>
<td>3</td>
<td>The Earth System</td>
</tr>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>PSYC 100</td>
<td>3</td>
<td>Introduction to Psychology</td>
</tr>
</tbody>
</table>

First calculus course, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 139</td>
<td>4</td>
<td>Calculus 1 with Precalculus</td>
</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 150</td>
<td>4</td>
<td>Calculus A</td>
</tr>
</tbody>
</table>

Second calculus course, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>MATH 151</td>
<td>4</td>
<td>Calculus B</td>
</tr>
</tbody>
</table>
First physics course, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 101</td>
<td>(4)</td>
<td>Introductory Physics - Mechanics</td>
</tr>
<tr>
<td>PHYS 131</td>
<td>(4)</td>
<td>Mechanics and Waves</td>
</tr>
</tbody>
</table>

Second physics course, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 102</td>
<td>(4)</td>
<td>Introductory Physics - Electromagnetism</td>
</tr>
<tr>
<td>PHYS 142</td>
<td>(4)</td>
<td>Electromagnetism and Optics</td>
</tr>
</tbody>
</table>

**Electives**

Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at [http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/approved/](http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/approved/). Certain courses offered by other faculties may also be taken, but some restrictions apply.


**Education Component (60 credits)**

60 credits of Education Component consisting of:

- 54 credits of required courses
- 6 credits of complementary courses

**Required Courses**

54 credits

*Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman year.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC 201</td>
<td>(1)</td>
<td>First Year Professional Seminar</td>
</tr>
<tr>
<td>EDEC 215</td>
<td>(0)</td>
<td>English Language Requirement</td>
</tr>
<tr>
<td>EDEC 247*</td>
<td>(3)</td>
<td>Policy Issues in Quebec Education</td>
</tr>
<tr>
<td>EDEC 254</td>
<td>(1)</td>
<td>Second Professional Seminar (Secondary)</td>
</tr>
<tr>
<td>EDEC 262*</td>
<td>(3)</td>
<td>Media, Technology and Education</td>
</tr>
<tr>
<td>EDEC 351</td>
<td>(2)</td>
<td>Third Professional Seminar (Secondary)</td>
</tr>
<tr>
<td>EDEC 404</td>
<td>(3)</td>
<td>Fourth Year Professional Seminar (Sec)</td>
</tr>
<tr>
<td>EDES 335</td>
<td>(3)</td>
<td>Teaching Secondary Science 1</td>
</tr>
<tr>
<td>EDES 350</td>
<td>(3)</td>
<td>Classroom Practices (Secondary)</td>
</tr>
<tr>
<td>EDES 435</td>
<td>(3)</td>
<td>Teaching Secondary Science 2</td>
</tr>
<tr>
<td>EDFE 200</td>
<td>(2)</td>
<td>First Field Experience (K/Elem &amp; Secondary)</td>
</tr>
<tr>
<td>EDFE 254</td>
<td>(3)</td>
<td>Second Field Experience (Secondary)</td>
</tr>
<tr>
<td>EDFE 351</td>
<td>(8)</td>
<td>Third Field Experience (Secondary)</td>
</tr>
<tr>
<td>EDFE 451</td>
<td>(7)</td>
<td>Fourth Field Experience (Secondary)</td>
</tr>
<tr>
<td>EDPE 300*</td>
<td>(3)</td>
<td>Educational Psychology</td>
</tr>
<tr>
<td>EDPE 304</td>
<td>(3)</td>
<td>Measurement and Evaluation</td>
</tr>
<tr>
<td>EDPI 309*</td>
<td>(3)</td>
<td>Exceptional Students</td>
</tr>
<tr>
<td>EDPI 341</td>
<td>(3)</td>
<td>Instruction in Inclusive Schools</td>
</tr>
</tbody>
</table>
**Complementary Courses**

6 credits selected as follows:

* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>First Nations and Inuit Education</td>
</tr>
<tr>
<td></td>
<td>Multicultural Education</td>
</tr>
<tr>
<td></td>
<td>Global Education and Social Justice</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Philosophical Foundations</td>
</tr>
<tr>
<td></td>
<td>Philosophy of Catholic Education</td>
</tr>
</tbody>
</table>

**Major Concentration Biology - Organismal (36 credits)**

The Major Concentration Biology - Organismal is a planned sequence of courses designed to permit a degree of specialization in organismal biology.

Advising Note: Freshman students should be aware that PHYS 101 and/or PHYS 102 are required for some of the courses in the major and minor concentrations in Biology.

**Required Courses**

24 credits

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Molecular Biology</td>
</tr>
<tr>
<td></td>
<td>Cell Biology and Metabolism</td>
</tr>
<tr>
<td></td>
<td>Basic Genetics</td>
</tr>
<tr>
<td></td>
<td>Biology of Organisms</td>
</tr>
<tr>
<td></td>
<td>Methods in Biology of Organisms</td>
</tr>
<tr>
<td></td>
<td>Introduction to Ecology and Evolution</td>
</tr>
<tr>
<td></td>
<td>Evolution</td>
</tr>
<tr>
<td></td>
<td>Ecological Dynamics</td>
</tr>
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</table>

**Complementary Courses**

12 credits selected from:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Developmental Biology</td>
</tr>
<tr>
<td></td>
<td>Animal Diversity</td>
</tr>
<tr>
<td></td>
<td>Neural Basis of Behaviour</td>
</tr>
<tr>
<td></td>
<td>Behavioural Ecology/Sociobiology</td>
</tr>
<tr>
<td></td>
<td>Biodiversity and Ecosystems</td>
</tr>
<tr>
<td></td>
<td>Ecology/Behaviour Field Course</td>
</tr>
<tr>
<td></td>
<td>Marine Biology</td>
</tr>
<tr>
<td></td>
<td>Insect Biology and Control</td>
</tr>
<tr>
<td></td>
<td>Biometry</td>
</tr>
<tr>
<td></td>
<td>Herpetology</td>
</tr>
</tbody>
</table>
BIOL 435 (3) Natural Selection
BIOL 441 (3) Biological Oceanography
BIOL 465 (3) Conservation Biology

or other appropriate course at the 300 level or higher with the permission of an adviser.

**Minor Chemistry (18 credits)**

**Required Courses**
18 credits selected as follows:

* Note: denotes courses with CEGEP equivalents.

Substitutions for these by more advanced courses may be made at the discretion of the Adviser.

- CHEM 203 (3) Survey of Physical Chemistry
- CHEM 212* (4) Introductory Organic Chemistry 1
- CHEM 222* (4) Introductory Organic Chemistry 2
- CHEM 253 (1) Introductory Physical Chemistry 1 Laboratory
- CHEM 281 (3) Inorganic Chemistry 1
- CHEM 287 (2) Introductory Analytical Chemistry
- CHEM 297 (1) Introductory Analytical Chemistry Laboratory

**Additional Science Courses (15 credits)**
15 credits selected as follows:

12 credits:
- BIOL 210 (3) Perspectives of Science
- CHEM 381 (3) Inorganic Chemistry 2
- MATH 203 (3) Principles of Statistics 1
- MATH 222 (3) Calculus 3

plus 3 credits, one of:
- CHEM 180 (3) World of Chemistry: Environment
- CHEM 181 (3) World of Chemistry: Food
- CHEM 182 (3) World of Chemistry: Technology
- CHEM 183 (3) World of Chemistry: Drugs

**Electives (6 credits)**
6 credits, of which at least 3 credits must be Science Electives.

The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.
Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

The Major Concentration Biology - Cell/Molecular with Minor Physics is one of the nine variations of the program and allows students to focus their Science degree in Cell/Molecular Biology with a subspecialization in Physics.

To fulfil the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:

(30 credits of Science Freshman Program (for students admitted without basic sciences))

60 credits of Education Component

69 credits of Science Component consisting of:

- 36 credits of Major Concentration Biology - Cell/Molecular
- 18 credits of Minor Physics
- 15 credits of Additional Science Courses

6 credits of Electives, of which at least 3 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.

For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

**B.Sc. Freshman Program**

Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUA) to obtain advice and approval of their course selection. Full details are available on the SOUA website at http://www.mcgill.ca/science/sousa. Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.

Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science courses, selected as follows:

**General Math and Science Breadth**

Six of the Freshman courses must satisfy one of the following:

Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;

or

Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

**Science Complementary**

The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:

1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.

2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.

3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/specific/.

4. The maximum number of courses per term, required, complementary, and elective, is five.

**List of Approved Freshman Science Courses**

Select the approved courses according to the instructions above.

Note:

* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)

* CHEM 120 (not open to students who have taken CHEM 115)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 111</td>
<td>(3)</td>
<td>Principles: Organismal Biology</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>(3)</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>(4)</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 115*</td>
<td>(4)</td>
<td>Accelerated General Chemistry: Giants in Science</td>
</tr>
</tbody>
</table>
CHEM 120* (4) General Chemistry 2
COMP 202 (3) Introduction to Computing 1
ESYS 104 (3) The Earth System
MATH 133 (3) Linear Algebra and Geometry
PSYC 100 (3) Introduction to Psychology

First calculus course, one of:
MATH 139 (4) Calculus 1 with Precalculus
MATH 140 (3) Calculus 1
MATH 150 (4) Calculus A

Second calculus course, one of:
MATH 141 (4) Calculus 2
MATH 151 (4) Calculus B

First physics course, one of:
PHYS 101 (4) Introductory Physics - Mechanics
PHYS 131 (4) Mechanics and Waves

Second physics course, one of:
PHYS 102 (4) Introductory Physics - Electromagnetism
PHYS 142 (4) Electromagnetism and Optics

Electives
Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/approved/. Certain courses offered by other faculties may also be taken, but some restrictions apply.
Consult the SOUSA website at http://www.mcgill.ca/science/sousa/continuing_students/bsc/outside/ for more information about taking courses from other faculties.

Education Component (60 credits)
60 credits of Education Component, consisting of:
54 credits of required courses
6 credits of complementary courses

Required Courses
54 credits
* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.
The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman year.
EDEC 201 (1) First Year Professional Seminar
EDEC 215 (0) English Language Requirement
EDEC 247* (3) Policy Issues in Quebec Education
EDEC 254  (1)  Second Professional Seminar (Secondary)
EDEC 262*  (3)  Media, Technology and Education
EDEC 351  (2)  Third Professional Seminar (Secondary)
EDEC 404  (3)  Fourth Year Professional Seminar (Sec)
EDES 335  (3)  Teaching Secondary Science 1
EDES 350  (3)  Classroom Practices (Secondary)
EDES 435  (3)  Teaching Secondary Science 2
EDFE 200  (2)  First Field Experience (K/Elem & Secondary)
EDFE 254  (3)  Second Field Experience (Secondary)
EDFE 351  (8)  Third Field Experience (Secondary)
EDFE 451  (7)  Fourth Field Experience (Secondary)
EDPE 300*  (3)  Educational Psychology
EDPE 304  (3)  Measurement and Evaluation
EDPI 309*  (3)  Exceptional Students
EDPI 341  (3)  Instruction in Inclusive Schools

Complementary Courses
6 credits selected as follows:
* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the three following courses:
EDEC 233*  (3)  First Nations and Inuit Education
EDEC 248*  (3)  Multicultural Education
EDEC 249*  (3)  Global Education and Social Justice

3 credits, one of the two following courses:
EDEC 260*  (3)  Philosophical Foundations
EDEC 261*  (3)  Philosophy of Catholic Education

Major Concentration Biology - Cell/Molecular (36 credits)
The Major Concentration Biology - Cell/Molecular is a planned sequence of courses designed to permit a degree of specialization in cell/molecular biology.

Advising Note: Freshman students should be aware that PHYS 101 and/or PHYS 102 are required for some of the courses in the major and minor concentrations in Biology.

Required Courses*
29 credits selected as follows:
* Students who have already taken CHEM 212 or its equivalent will choose another appropriate complementary course, to be approved by the Adviser. Regardless of the substitution, students must take at least 36 credits in this program.

BIOL 200  (3)  Molecular Biology
BIOL 201  (3)  Cell Biology and Metabolism
BIOL 202  (3)  Basic Genetics
BIOL 205  (3)  Biology of Organisms
BIOL 215 (3) Introduction to Ecology and Evolution
BIOL 300 (3) Molecular Biology of the Gene
BIOL 301 (4) Cell and Molecular Laboratory
BIOL 303 (3) Developmental Biology
CHEM 212* (4) Introductory Organic Chemistry 1

Complementary Courses
At least 7 credits selected from:

BIOL 306 (3) Neural Basis of Behaviour
BIOL 313 (3) Eukaryotic Cell Biology
BIOL 314 (3) Molecular Biology of Oncogenes
BIOL 370 (3) Human Genetics Applied
BIOL 373 (3) Biometry
BIOL 413 (1) Directed Reading
BIOL 568 (3) Topics on the Human Genome
BIOL 575 (3) Human Biochemical Genetics

or other appropriate course at the 300 level or higher with the permission of an adviser.

Minor Physics (18 credits)

Required Course
3 credits

PHYS 257 (3) Experimental Methods 1

Complementary Courses
15 credits to be selected as follows:

One of:
PHYS 230 (3) Dynamics of Simple Systems
PHYS 251 (3) Honours Classical Mechanics 1

One of:
PHYS 232 (3) Heat and Waves
PHYS 253 (3) Thermal Physics

One of:
PHYS 241 (3) Signal Processing
PHYS 258 (3) Experimental Methods 2

One of:
PHYS 214 (3) Introductory Astrophysics
PHYS 224  (3)  Physics of Music
PHYS 260  (3)  Modern Physics and Relativity
PHYS 271  (3)  Introduction to Quantum Physics

One of:
PHYS 340  (3)  Majors Electricity and Magnetism
PHYS 350  (3)  Honours Electricity and Magnetism

Additional Science Courses (15 credits)
BIOL 210  (3)  Perspectives of Science
MATH 203  (3)  Principles of Statistics 1
MATH 222  (3)  Calculus 3
MATH 223  (3)  Linear Algebra
MATH 314  (3)  Advanced Calculus

Electives (6 credits)
6 credits, of which at least 3 credits must be Science Electives.
The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.

12.14.34.8 Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Organismal with Minor Physics for Teachers (135 credits)
The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Biology - Organismal with Minor Physics for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfill all the requirements for graduation for both the B.Sc. and the B.Ed. Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".
The Major Concentration Biology - Organismal with Minor Physics is one of the nine variations of the program and allows students to focus their Science degree in Organismal Biology with a subspecialization in Physics.

To fulfill the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:
(30 credits of Science Freshman Program (for students admitted without basic sciences))
60 credits of Education Component
70 credits of Science Component consisting of:
- 37 credits of Major Concentration Biology - Organismal
- 18 credits of Minor Physics
- 15 credits of Additional Science Courses
5 credits of Electives, of which at least 2 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.
For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

B.Sc. Freshman Program
Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOU SA) to obtain advice and approval of their course selection. Full details are available on the SOUSA website at http://www.mcgill.ca/science/sousa. Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.
Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science courses, selected as follows:

**General Math and Science Breadth**
Six of the Freshman courses must satisfy one of the following:
Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;
or
Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

**Science Complementary**
The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:
1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.
2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.
3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/specific/.
4. The maximum number of courses per term, required, complementary, and elective, is five.

**List of Approved Freshman Science Courses**
Select the approved courses according to the instructions above.

Note:
* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)
* CHEM 120 (not open to students who have taken CHEM 115)

Biol 111 (3) Principles: Organismal Biology
Biol 112 (3) Cell and Molecular Biology
Chem 110 (4) General Chemistry 1
Chem 115* (4) Accelerated General Chemistry: Giants in Science
Chem 120* (4) General Chemistry 2
Comp 202 (3) Introduction to Computing 1
Esys 104 (3) The Earth System
Math 133 (3) Linear Algebra and Geometry
Psyc 100 (3) Introduction to Psychology

First calculus course, one of:
Math 139 (4) Calculus 1 with Precalculus
Math 140 (3) Calculus 1
Math 150 (4) Calculus A

Second calculus course, one of:
Math 141 (4) Calculus 2
Math 151 (4) Calculus B

First physics course, one of:
Phys 101 (4) Introductory Physics - Mechanics
PHYS 131 (4) Mechanics and Waves

Second physics course, one of:

PHYS 102 (4) Introductory Physics - Electromagnetism
PHYS 142 (4) Electromagnetism and Optics

**Electives**

Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/approved/. Certain courses offered by other faculties may also be taken, but some restrictions apply.

Consult the SOUSA website at http://www.mcgill.ca/science/sousa/continuing_students/bsc/outside/ for more information about taking courses from other faculties.

**Education Component (60 credits)**

60 credits of Education Component, consisting of:

54 credits of required courses
6 credits of complementary courses

**Required Courses**

54 credits

* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman Year.

EDEC 201 (1) First Year Professional Seminar
EDEC 215 (0) English Language Requirement
EDEC 247* (3) Policy Issues in Quebec Education
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EDEC 351 (2) Third Professional Seminar (Secondary)
EDEC 404 (3) Fourth Year Professional Seminar (Sec)
EDES 335 (3) Teaching Secondary Science 1
EDES 350 (3) Classroom Practices (Secondary)
EDES 435 (3) Teaching Secondary Science 2
EDFE 200 (2) First Field Experience (K/Elem & Secondary)
EDFE 254 (3) Second Field Experience (Secondary)
EDFE 351 (8) Third Field Experience (Secondary)
EDFE 451 (7) Fourth Field Experience (Secondary)
EDPE 300* (3) Educational Psychology
EDPE 304 (3) Measurement and Evaluation
EDPI 309* (3) Exceptional Students
EDPI 341 (3) Instruction in Inclusive Schools

**Complementary Courses**

6 credits selected as follows:
* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the three following courses:

- EDEC 233* (3) First Nations and Inuit Education
- EDEC 248* (3) Multicultural Education
- EDEC 249* (3) Global Education and Social Justice

3 credits, one of the two following courses:

- EDEC 260* (3) Philosophical Foundations
- EDEC 261* (3) Philosophy of Catholic Education

**Major Concentration Biology - Organismal (37 credits)**

The Major Concentration Biology - Organismal is a planned sequence of courses designed to permit a degree of specialization in organismal biology.

Advising Note: Freshman students should be aware that PHYS 101 and/or PHYS 102 are required for some of the courses in the major and minor concentrations in Biology.

**Required Courses***

28 credits selected as follows:

* Students who have already taken CHEM 212 or its equivalent will choose another appropriate complementary course, to be approved by the Adviser. Regardless of the substitution, students must take at least 36 credits in this program.

- BIOL 200 (3) Molecular Biology
- BIOL 201 (3) Cell Biology and Metabolism
- BIOL 202 (3) Basic Genetics
- BIOL 205 (3) Biology of Organisms
- BIOL 206 (3) Methods in Biology of Organisms
- BIOL 215 (3) Introduction to Ecology and Evolution
- BIOL 304 (3) Evolution
- BIOL 308 (3) Ecological Dynamics
- CHEM 212* (4) Introductory Organic Chemistry 1

**Complementary Courses**

9 credits selected from:

- BIOL 303 (3) Developmental Biology
- BIOL 305 (3) Animal Diversity
- BIOL 306 (3) Neural Basis of Behaviour
- BIOL 307 (3) Behavioural Ecology/Sociobiology
- BIOL 310 (3) Biodiversity and Ecosystems
- BIOL 331 (3) Ecology/Behaviour Field Course
- BIOL 342 (3) Marine Biology
- BIOL 350 (3) Insect Biology and Control
- BIOL 352 (3) Vertebrate Evolution
- BIOL 373 (3) Biometry
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BIOL 427</td>
<td>3</td>
<td>Herpetology</td>
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<tr>
<td>BIOL 435</td>
<td>3</td>
<td>Natural Selection</td>
</tr>
<tr>
<td>BIOL 441</td>
<td>3</td>
<td>Biological Oceanography</td>
</tr>
<tr>
<td>BIOL 465</td>
<td>3</td>
<td>Conservation Biology</td>
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</table>

or other appropriate course at the 300 level or higher with the permission of an adviser.

**Minor Physics (18 credits)**

**Required Course**

3 credits

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>PHYS 257</td>
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**Complementary Courses**

15 credits to be selected as follows:

One of:

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<thead>
<tr>
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<tbody>
<tr>
<td>PHYS 230</td>
<td>3</td>
<td>Dynamics of Simple Systems</td>
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<tr>
<td>PHYS 251</td>
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<td>Honours Classical Mechanics 1</td>
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One of:

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>PHYS 232</td>
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<td>Heat and Waves</td>
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<tr>
<td>PHYS 253</td>
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<td>Thermal Physics</td>
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One of:

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<tbody>
<tr>
<td>PHYS 241</td>
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<td>Signal Processing</td>
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<tr>
<td>PHYS 258</td>
<td>3</td>
<td>Experimental Methods 2</td>
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One of:

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<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>PHYS 214</td>
<td>3</td>
<td>Introductory Astrophysics</td>
</tr>
<tr>
<td>PHYS 224</td>
<td>3</td>
<td>Physics of Music</td>
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<tr>
<td>PHYS 260</td>
<td>3</td>
<td>Modern Physics and Relativity</td>
</tr>
<tr>
<td>PHYS 271</td>
<td>3</td>
<td>Introduction to Quantum Physics</td>
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One of:

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<tr>
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<th>Credits</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>PHYS 340</td>
<td>3</td>
<td>Majors Electricity and Magnetism</td>
</tr>
<tr>
<td>PHYS 350</td>
<td>3</td>
<td>Honours Electricity and Magnetism</td>
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**Additional Science Courses (15 credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 210</td>
<td>3</td>
<td>Perspectives of Science</td>
</tr>
<tr>
<td>MATH 203</td>
<td>3</td>
<td>Principles of Statistics 1</td>
</tr>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
</tbody>
</table>
Electives (5 credits)

5 credits, of which at least 2 credits must be Science Electives.

The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.

12.14.34.9 Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Chemistry with Minor Biology for Teachers (135 credits)

The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Chemistry with Minor Biology for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfil all the requirements for graduation for both the B.Sc. and the B.Ed.

Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under “Overview of Faculty Programs”, “Undergraduate Education Programs”, and “Quebec Teacher Certification”.

The Major Concentration Chemistry with Minor Biology is one of the nine variations of the program and allows students to focus their Science degree in Chemistry with a subspecialization in Biology.

To fulfil the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:

- (30 credits of Science Freshman Program (for students admitted without basic sciences))
- 60 credits of Education Component
- 69 credits of Science Component consisting of:
  - 36 credits of the Major Concentration Chemistry
  - 24 credits of the Minor Biology
  - 9 credits of Additional Science Courses
- 6 credits of Electives, of which at least 3 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.

For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

B.Sc. Freshman Program

Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUA) to obtain advice and approval of their course selection. Full details are available on the SOUSA website at http://www.mcgill.ca/science/sousa. Academic advising is also available by email. The address is newstudentadvising.science@mcmill.ca.

Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science Courses, selected as follows:

General Math and Science Breadth

Six of the Freshman courses must satisfy one of the following:

Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;

or

Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

Science Complementary

The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:

1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.

2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.
3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/specific/.

4. The maximum number of courses per term, required, complementary, and elective, is five.

**List of Approved Freshman Science Courses**

Select the approved courses according to the instructions above.

Note:

* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)
* CHEM 120 (not open to students who have taken CHEM 115)

<table>
<thead>
<tr>
<th>Course</th>
<th>(Units)</th>
<th>Description</th>
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<tr>
<td>BIOL 111</td>
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<td>Principles: Organismal Biology</td>
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<tr>
<td>BIOL 112</td>
<td>(3)</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>(4)</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 115*</td>
<td>(4)</td>
<td>Accelerated General Chemistry: Giants in Science</td>
</tr>
<tr>
<td>CHEM 120*</td>
<td>(4)</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>COMP 202</td>
<td>(3)</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>ESYS 104</td>
<td>(3)</td>
<td>The Earth System</td>
</tr>
<tr>
<td>MATH 133</td>
<td>(3)</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>PSYC 100</td>
<td>(3)</td>
<td>Introduction to Psychology</td>
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**First calculus course, one of:**

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<tr>
<th>Course</th>
<th>(Units)</th>
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</thead>
<tbody>
<tr>
<td>MATH 139</td>
<td>(4)</td>
<td>Calculus 1 with Precalculus</td>
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<tr>
<td>MATH 140</td>
<td>(3)</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 150</td>
<td>(4)</td>
<td>Calculus A</td>
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**Second calculus course, one of:**

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<tr>
<th>Course</th>
<th>(Units)</th>
<th>Description</th>
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</thead>
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<tr>
<td>MATH 141</td>
<td>(4)</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>MATH 151</td>
<td>(4)</td>
<td>Calculus B</td>
</tr>
</tbody>
</table>

**First physics course, one of:**

<table>
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<tr>
<th>Course</th>
<th>(Units)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 101</td>
<td>(4)</td>
<td>Introductory Physics - Mechanics</td>
</tr>
<tr>
<td>PHYS 131</td>
<td>(4)</td>
<td>Mechanics and Waves</td>
</tr>
</tbody>
</table>

**Second physics course, one of:**

<table>
<thead>
<tr>
<th>Course</th>
<th>(Units)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 102</td>
<td>(4)</td>
<td>Introductory Physics - Electromagnetism</td>
</tr>
<tr>
<td>PHYS 142</td>
<td>(4)</td>
<td>Electromagnetism and Optics</td>
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</table>

**Electives**

Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/approved/. Certain courses offered by other faculties may also be taken, but some restrictions apply.

Consult the SOUSA website at http://www.mcgill.ca/science/sousa/continuing_students/bsc/outside/ for more information about taking courses from other faculties.
**Education Component (60 credits)**

60 credits of Education Component, consisting of:

- 54 credits of required courses
- 6 credits of complementary courses

**Required Courses**

54 credits

* *Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman year.

- EDEC 201 (1) First Year Professional Seminar
- EDEC 215 (0) English Language Requirement
- EDEC 247* (3) Policy Issues in Quebec Education
- EDEC 254 (1) Second Professional Seminar (Secondary)
- EDEC 262* (3) Media, Technology and Education
- EDEC 351 (2) Third Professional Seminar (Secondary)
- EDEC 404 (3) Fourth Year Professional Seminar (Sec)
- EDES 335 (3) Teaching Secondary Science 1
- EDES 350 (3) Classroom Practices (Secondary)
- EDES 435 (3) Teaching Secondary Science 2
- EDFE 200 (2) First Field Experience (K/Elem & Secondary)
- EDFE 254 (3) Second Field Experience (Secondary)
- EDFE 351 (8) Third Field Experience (Secondary)
- EDFE 451 (7) Fourth Field Experience (Secondary)
- EDPE 300* (3) Educational Psychology
- EDPE 304 (3) Measurement and Evaluation
- EDPI 309* (3) Exceptional Students
- EDPI 341 (3) Instruction in Inclusive Schools

**Complementary Courses**

6 credits selected as follows:

* *Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the three following courses:

- EDEC 233* (3) First Nations and Inuit Education
- EDEC 248* (3) Multicultural Education
- EDEC 249* (3) Global Education and Social Justice

3 credits, one of the two following courses:

- EDEC 260* (3) Philosophical Foundations
- EDEC 261* (3) Philosophy of Catholic Education
Major Concentration Chemistry (36 credits)

The Major Concentration Chemistry is not certified by the Ordre des Chimistes du Québec. Students interested in pursuing a career in Chemistry in Quebec are advised to take an appropriate B.Sc. program in Chemistry.

The Major concentration is a planned sequence of courses designed to permit a degree of specialization in this discipline.

Required Courses*

18 credits

* Note: Required courses taken at CEGEP or elsewhere that are not credited toward the Concurrent B.Sc. and B.Ed. must be replaced by courses from the Complementary Course List equal to or exceeding their credit value. Regardless of the substitution, students must take at least 36 credits in this program.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>CHEM 203</td>
<td>3</td>
<td>Survey of Physical Chemistry</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 222</td>
<td>4</td>
<td>Introductory Organic Chemistry 2</td>
</tr>
<tr>
<td>CHEM 253</td>
<td>1</td>
<td>Introductory Physical Chemistry 1 Laboratory</td>
</tr>
<tr>
<td>CHEM 281</td>
<td>3</td>
<td>Inorganic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 287</td>
<td>2</td>
<td>Introductory Analytical Chemistry</td>
</tr>
<tr>
<td>CHEM 297</td>
<td>1</td>
<td>Introductory Analytical Chemistry Laboratory</td>
</tr>
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Complementary Courses

18 credits selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credits</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>CHEM 219</td>
<td>3</td>
<td>Introduction to Atmospheric Chemistry</td>
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<tr>
<td>CHEM 263</td>
<td>1</td>
<td>Introductory Physical Chemistry 2 Laboratory</td>
</tr>
<tr>
<td>CHEM 302</td>
<td>3</td>
<td>Introductory Organic Chemistry 3</td>
</tr>
<tr>
<td>CHEM 307</td>
<td>3</td>
<td>Analytical Chemistry of Pollutants</td>
</tr>
<tr>
<td>CHEM 334</td>
<td>3</td>
<td>Advanced Materials</td>
</tr>
<tr>
<td>CHEM 367</td>
<td>3</td>
<td>Instrumental Analysis 1</td>
</tr>
<tr>
<td>CHEM 381</td>
<td>3</td>
<td>Inorganic Chemistry 2</td>
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<td>CHEM 382</td>
<td>3</td>
<td>Organic Chemistry: Natural Products</td>
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<td>CHEM 531</td>
<td>3</td>
<td>Chemistry of Inorganic Materials</td>
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<td>CHEM 571</td>
<td>3</td>
<td>Polymer Synthesis</td>
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<td>CHEM 582</td>
<td>3</td>
<td>Supramolecular Chemistry</td>
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<tr>
<td>CHEM 591</td>
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</table>

Minor Biology (24 credits)

Required Courses

15 credits

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<th>Course Title</th>
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<tr>
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<td>Molecular Biology</td>
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<tr>
<td>BIOL 201</td>
<td>3</td>
<td>Cell Biology and Metabolism</td>
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<tr>
<td>BIOL 202</td>
<td>3</td>
<td>Basic Genetics</td>
</tr>
<tr>
<td>BIOL 205</td>
<td>3</td>
<td>Biology of Organisms</td>
</tr>
<tr>
<td>BIOL 215</td>
<td>3</td>
<td>Introduction to Ecology and Evolution</td>
</tr>
</tbody>
</table>

Complementary Courses
9 credits selected from the Biology Department's course offerings, at the 300 level or above.

**Additional Science Courses (9 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 210</td>
<td>3</td>
<td>Perspectives of Science</td>
</tr>
<tr>
<td>MATH 203</td>
<td>3</td>
<td>Principles of Statistics 1</td>
</tr>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
</tbody>
</table>

**Electives (6 credits)**

6 credits, of which at least 3 credits must be Science Electives.

The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.

**12.14.34.10 Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Chemistry with Minor Physics for Teachers (135 credits)**

The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Chemistry with Minor Physics for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfill all the requirements for graduation for both the B.Sc. and the B.Ed.

Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

The Major Concentration Chemistry with Minor Physics is one of the nine variations of the program and allows students to focus their Science degree in Chemistry with a subspecialization in Physics.

To fulfill the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:

- (30 credits of Science Freshman Program (for students admitted without basic sciences))
- 60 credits of Education Component
- 69 credits of Science Component consisting of:
  - 36 credits of the Major Concentration Chemistry
  - 18 credits of the Minor Physics
  - 15 credits of Additional Science Courses

6 credits of Electives, of which at least 3 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.

For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

**B.Sc. Freshman Program**

Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUA) to obtain advice and approval of their course selection. Full details are available on the SOUSA website at http://www.mcgill.ca/science/sousa. Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.

Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science courses, selected as follows:

**General Math and Science Breadth**

Six of the Freshman courses must satisfy one of the following:

- Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;
- or
- Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

**Science Complementary**

The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:
1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.

2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.

3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/specific/.

4. The maximum number of courses per term, required, complementary, and elective, is five.

**List of Approved Freshman Science Courses**

Select the approved courses according to the instructions above.

**Note:**

* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)
* CHEM 120 (not open to students who have taken CHEM 115)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 111</td>
<td>(3)</td>
<td>Principles: Organismal Biology</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>(3)</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>(4)</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 115*</td>
<td>(4)</td>
<td>Accelerated General Chemistry: Giants in Science</td>
</tr>
<tr>
<td>CHEM 120*</td>
<td>(4)</td>
<td>General Chemistry 2</td>
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<tr>
<td>COMP 202</td>
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<td>Introduction to Computing 1</td>
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<td>ESYS 104</td>
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<td>The Earth System</td>
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<td>MATH 133</td>
<td>(3)</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>PSYC 100</td>
<td>(3)</td>
<td>Introduction to Psychology</td>
</tr>
</tbody>
</table>

First calculus course, one of:

- MATH 139  (4)  Calculus 1 with Precalculus
- MATH 140  (3)  Calculus 1
- MATH 150  (4)  Calculus A

Second calculus course, one of:

- MATH 141  (4)  Calculus 2
- MATH 151  (4)  Calculus B

First physics course, one of:

- PHYS 101  (4)  Introductory Physics - Mechanics
- PHYS 131  (4)  Mechanics and Waves

Second physics course, one of:

- PHYS 102  (4)  Introductory Physics - Electromagnetism
- PHYS 142  (4)  Electromagnetism and Optics

**Electives**

Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/approved/. Certain courses offered by other faculties may also be taken, but some restrictions apply.
Consult the SOUSA website at http://www.mcgill.ca/science/sousa/continuing_students/bsc/outside/ for more information about taking courses from other faculties.

**Education Component (60 credits)**

60 credits of Education Component, consisting of:
- 54 credits of required courses
- 6 credits of complementary courses

**Required Courses**

54 credits

* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

The English Language Requirement (EDEC 215) must be taken in the Full semester following the Freshman year.

- EDEC 201 (1) First Year Professional Seminar
- EDEC 215 (0) English Language Requirement
- EDEC 247* (3) Policy Issues in Quebec Education
- EDEC 254 (1) Second Professional Seminar (Secondary)
- EDEC 262* (3) Media, Technology and Education
- EDEC 351 (2) Third Professional Seminar (Secondary)
- EDEC 404 (3) Fourth Year Professional Seminar (Sec)
- EDES 335 (3) Teaching Secondary Science 1
- EDES 350 (3) Classroom Practices (Secondary)
- EDES 435 (3) Teaching Secondary Science 2
- EDFE 200 (2) First Field Experience (K/Elem & Secondary)
- EDFE 254 (3) Second Field Experience (Secondary)
- EDFE 351 (8) Third Field Experience (Secondary)
- EDFE 451 (7) Fourth Field Experience (Secondary)
- EDPE 300* (3) Educational Psychology
- EDPE 304 (3) Measurement and Evaluation
- EDPI 309* (3) Exceptional Students
- EDPI 341 (3) Instruction in Inclusive Schools

**Complementary Courses**

6 credits selected as follows:

* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the three following courses:

- EDEC 233* (3) First Nations and Inuit Education
- EDEC 248* (3) Multicultural Education
- EDEC 249* (3) Global Education and Social Justice

3 credits, one of the two following courses:

- EDEC 260* (3) Philosophical Foundations
Major Concentration Chemistry (36 credits)

The Major Concentration Chemistry is not certified by the Ordre des Chimistes du Québec. Students interested in pursuing a career in Chemistry in Quebec are advised to take an appropriate B.Sc. program in Chemistry.

The Major concentration is a planned sequence of courses designed to permit a degree of specialization in this discipline.

Required Courses*

18 credits selected as follows:

* Note: Required courses taken at CEGEP or elsewhere that are not credited toward the Concurrent B.Sc. and B.Ed. must be replaced by courses from the Complementary Course List equal to or exceeding their credit value. Regardless of the substitution, students must take at least 36 credits in this program.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 203</td>
<td>3</td>
<td>Survey of Physical Chemistry</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>4</td>
<td>Introductory Organic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 222</td>
<td>4</td>
<td>Introductory Organic Chemistry 2</td>
</tr>
<tr>
<td>CHEM 253</td>
<td>1</td>
<td>Introductory Physical Chemistry 1 Laboratory</td>
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<tr>
<td>CHEM 281</td>
<td>3</td>
<td>Inorganic Chemistry 1</td>
</tr>
<tr>
<td>CHEM 287</td>
<td>2</td>
<td>Introductory Analytical Chemistry</td>
</tr>
<tr>
<td>CHEM 297</td>
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<td>Introductory Analytical Chemistry Laboratory</td>
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Complementary Courses

18 credits selected from:

<table>
<thead>
<tr>
<th>Course</th>
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<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 219</td>
<td>3</td>
<td>Introduction to Atmospheric Chemistry</td>
</tr>
<tr>
<td>CHEM 263</td>
<td>1</td>
<td>Introductory Physical Chemistry 2 Laboratory</td>
</tr>
<tr>
<td>CHEM 302</td>
<td>3</td>
<td>Introductory Organic Chemistry 3</td>
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<tr>
<td>CHEM 307</td>
<td>3</td>
<td>Analytical Chemistry of Pollutants</td>
</tr>
<tr>
<td>CHEM 334</td>
<td>3</td>
<td>Advanced Materials</td>
</tr>
<tr>
<td>CHEM 367</td>
<td>3</td>
<td>Instrumental Analysis 1</td>
</tr>
<tr>
<td>CHEM 381</td>
<td>3</td>
<td>Inorganic Chemistry 2</td>
</tr>
<tr>
<td>CHEM 382</td>
<td>3</td>
<td>Organic Chemistry: Natural Products</td>
</tr>
<tr>
<td>CHEM 531</td>
<td>3</td>
<td>Chemistry of Inorganic Materials</td>
</tr>
<tr>
<td>CHEM 571</td>
<td>3</td>
<td>Polymer Synthesis</td>
</tr>
<tr>
<td>CHEM 582</td>
<td>3</td>
<td>Supramolecular Chemistry</td>
</tr>
<tr>
<td>CHEM 591</td>
<td>3</td>
<td>Bioinorganic Chemistry</td>
</tr>
</tbody>
</table>

Minor Physics (18 credits)

Required Course

3 credits

<table>
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<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 257</td>
<td>3</td>
<td>Experimental Methods 1</td>
</tr>
</tbody>
</table>

Complementary Courses

15 credits to be selected as follows:

One of:
PHYS 230 (3) Dynamics of Simple Systems
PHYS 251 (3) Honours Classical Mechanics 1

One of:
PHYS 232 (3) Heat and Waves
PHYS 253 (3) Thermal Physics

One of:
PHYS 241 (3) Signal Processing
PHYS 258 (3) Experimental Methods 2

One of:
PHYS 214 (3) Introductory Astrophysics
PHYS 224 (3) Physics of Music
PHYS 260 (3) Modern Physics and Relativity
PHYS 271 (3) Introduction to Quantum Physics

One of:
PHYS 340 (3) Majors Electricity and Magnetism
PHYS 350 (3) Honours Electricity and Magnetism

Additional Science Courses (15 credits)
BIOL 210 (3) Perspectives of Science
MATH 203 (3) Principles of Statistics 1
MATH 222 (3) Calculus 3
MATH 223 (3) Linear Algebra
MATH 314 (3) Advanced Calculus

Electives (6 credits)
6 credits, of which at least 3 credits must be Science Electives.
The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.

12143411 Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Physics with Minor Biology for Teachers (135 credits)
The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Physics with Minor Biology for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfil all the requirements for graduation for both the B.Sc. and the B.Ed.
Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".
The Major Concentration Physics with Minor Biology is one of the nine variations of the program and allows students to focus their Science degree in Physics with a subspecialization in Biology.
To fulfil the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:

(30 credits of Science Freshman Program (for students admitted without basic sciences))

60 credits of Education Component

69 credits of Science Component consisting of:
- 36 credits of Major Concentration Physics
- 24 credits of Minor Biology
- 9 credits of Additional Science Courses

6 credits of Electives, of which at least 3 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.

For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

**B.Sc. Freshman Program**

Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUSA) to obtain advice and approval of their course selection. Full details are available on the SOUSA website at http://www.mcgill.ca/science/sousa. Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.

Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science courses, selected as follows:

**General Math and Science Breadth**

Six of the Freshman courses must satisfy one of the following:

Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;

or

Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

**Science Complementary**

The seventh course is chosen from the list of Approved Freshman Science Courses.

**Notes:**

1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.

2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.

3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/specif/.  

4. The maximum number of courses per term, required, complementary, and elective, is five.

**List of Approved Freshman Science Courses**

Select the approved courses according to the instructions above.

**Note:**

* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)
* CHEM 120 (not open to students who have taken CHEM 115)

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
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<td>(3)</td>
<td>Principles: Organismal Biology</td>
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<tr>
<td>BIOL 112</td>
<td>(3)</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>(4)</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 115*</td>
<td>(4)</td>
<td>Accelerated General Chemistry: Giants in Science</td>
</tr>
<tr>
<td>CHEM 120*</td>
<td>(4)</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>COMP 202</td>
<td>(3)</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>ESYS 104</td>
<td>(3)</td>
<td>The Earth System</td>
</tr>
</tbody>
</table>
MATH 133  (3) Linear Algebra and Geometry
PSYC 100  (3) Introduction to Psychology

First calculus course, one of:
  MATH 139  (4) Calculus 1 with Precalculus
  MATH 140  (3) Calculus 1
  MATH 150  (4) Calculus A

Second calculus course, one of:
  MATH 141  (4) Calculus 2
  MATH 151  (4) Calculus B

First physics course, one of:
  PHYS 101  (4) Introductory Physics - Mechanics
  PHYS 131  (4) Mechanics and Waves

Second physics course, one of:
  PHYS 102  (4) Introductory Physics - Electromagnetism
  PHYS 142  (4) Electromagnetism and Optics

Electives
Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at http://www.mcgill.ca/science/sousa/new_students/bsc_freshman/approved/. Certain courses offered by other faculties may also be taken, but some restrictions apply.
Consult the SOUSA website at http://www.mcgill.ca/science/sousa/continuing_students/bsc/outside/ for more information about taking courses from other faculties.

Education Component (60 credits)
60 credits of Education Component, consisting of:
  54 credits of required courses
  6 credits of complementary courses

Required Courses
54 credits
* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.
The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman year.
  EDEC 201  (1) First Year Professional Seminar
  EDEC 215  (0) English Language Requirement
  EDEC 247* (3) Policy Issues in Quebec Education
  EDEC 254  (1) Second Professional Seminar (Secondary)
  EDEC 262* (3) Media, Technology and Education
  EDEC 351  (2) Third Professional Seminar (Secondary)
EDEC 404  (3)  Fourth Year Professional Seminar (Sec)
EDES 335  (3)  Teaching Secondary Science 1
EDES 350  (3)  Classroom Practices (Secondary)
EDES 435  (3)  Teaching Secondary Science 2
EDFE 200  (2)  First Field Experience (K/Elem & Secondary)
EDFE 254  (3)  Second Field Experience (Secondary)
EDFE 351  (8)  Third Field Experience (Secondary)
EDFE 451  (7)  Fourth Field Experience (Secondary)
EDPE 300* (3)  Educational Psychology
EDPE 304  (3)  Measurement and Evaluation
EDPI 309* (3)  Exceptional Students
EDPI 341  (3)  Instruction in Inclusive Schools

Complementary Courses
6 credits selected as follows:
* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the three following courses:
EDEC 233* (3)  First Nations and Inuit Education
EDEC 248* (3)  Multicultural Education
EDEC 249* (3)  Global Education and Social Justice

3 credits, one of the two following courses:
EDEC 260* (3)  Philosophical Foundations
EDEC 261* (3)  Philosophy of Catholic Education

Major Concentration Physics (36 credits)
The Major Concentration Physics is a planned sequence of courses designed to permit a degree of specialization in this discipline.

Required Courses*
30 credits selected as follows:
* Note: Required courses taken at CEGEP or elsewhere that are not credited toward the Concurrent B.Sc. and B.Ed. must be replaced by courses from the Complementary Course List equal to or exceeding their credit value. Regardless of the substitution, students must take at least 36 credits in this program.

MATH 222  (3)  Calculus 3
MATH 223  (3)  Linear Algebra
MATH 314  (3)  Advanced Calculus
MATH 315  (3)  Ordinary Differential Equations
PHYS 230  (3)  Dynamics of Simple Systems
PHYS 232  (3)  Heat and Waves
PHYS 257  (3)  Experimental Methods 1
PHYS 333  (3)  Thermal and Statistical Physics
PHYS 340  (3)  Majors Electricity and Magnetism
Complementary Courses

6 credits selected from:

- PHYS 214 (3) Introductory Astrophysics
- PHYS 224 (3) Physics of Music
- PHYS 241 (3) Signal Processing
- PHYS 258 (3) Experimental Methods 2
- PHYS 334 (3) Advanced Materials
- PHYS 534 (3) Nanoscience and Nanotechnology

or any 300- or 400-level course approved by an adviser.

Minor Biology (24 credits)

24-25 credits for the Minor Biology selected as follows:

15 credits of required courses
9-10 credits of complementary courses

Required Courses

15 credits

- BIOL 200 (3) Molecular Biology
- BIOL 201 (3) Cell Biology and Metabolism
- BIOL 202 (3) Basic Genetics
- BIOL 205 (3) Biology of Organisms
- BIOL 215 (3) Introduction to Ecology and Evolution

Complementary Courses

9-10 credits of complementary courses, CHEM 212 and 6 selected from the Biology Department's course offerings, at the 300 level or above.

* Note: Students who have already taken CHEM 212 or its equivalent will choose another appropriate course, to be approved by the Adviser.

CHEM 212* (4) Introductory Organic Chemistry

Additional Science Courses (9 credits)

9 credits selected as follows:

6 credits:

- BIOL 210 (3) Perspectives of Science
- MATH 203 (3) Principles of Statistics

plus 3 credits, one additional Physics (PHYS) course approved by the Physics Department.

Electives (6 credits)

6 credits, of which at least 3 credits must be Science Electives.

The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.
Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Physics with Minor Chemistry for Teachers (135 credits)

The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Concentration Physics with Minor Chemistry for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfill all the requirements for graduation for both the B.Sc. and the B.Ed.

Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

The Major Concentration Physics with Minor Chemistry is one of the nine variations of the program and allows students to focus their Science degree in Physics with a subspecialization in Chemistry.

To fulfill the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:

- 30 credits of Science Freshman Program (for students admitted without basic sciences)
- 60 credits of Education Component
- 69 credits of Science Component consisting of:
  - 36 credits of the Major Concentration Physics
  - 18 credits of the Minor Chemistry
  - 15 credits of Additional Science Courses
- 6 credits of Electives, of which at least 3 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.

For details on the counting of credits toward both degrees (double-counting) visit the program website http://www.mcgill.ca/scienceforteachers/.

B.Sc. Freshman Program

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Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science courses, selected as follows:

**General Math and Science Breadth**

Six of the Freshman courses must satisfy one of the following:

Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;

or

Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

**Science Complementary**

The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:

1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.

2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.

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4. The maximum number of courses per term, required, complementary, and elective, is five.

**List of Approved Freshman Science Courses**

Select the approved courses according to the instructions above.

Note:
* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)
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First calculus course, one of:

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</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 150</td>
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<td>Calculus A</td>
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Second calculus course, one of:

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<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>MATH 151</td>
<td>4</td>
<td>Calculus B</td>
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First physics course, one of:

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<tbody>
<tr>
<td>PHYS 101</td>
<td>4</td>
<td>Introductory Physics - Mechanics</td>
</tr>
<tr>
<td>PHYS 131</td>
<td>4</td>
<td>Mechanics and Waves</td>
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</tbody>
</table>

Second physics course, one of:

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<tr>
<td>PHYS 102</td>
<td>4</td>
<td>Introductory Physics - Electromagnetism</td>
</tr>
<tr>
<td>PHYS 142</td>
<td>4</td>
<td>Electromagnetism and Optics</td>
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Electives

Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at http://www.mcgill.ca/science/sousa/new_students/all/bsc_freshman/approved/. Certain courses offered by other faculties may also be taken, but some restrictions apply.

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Education Component (60 credits)

60 credits of Education Component, consisting of:

54 credits of required courses
6 credits of complementary courses

Required Courses

54 credits
* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman year.

EDEC 201 (1) First Year Professional Seminar
EDEC 215 (0) English Language Requirement
EDEC 247* (3) Policy Issues in Quebec Education
EDEC 254 (1) Second Professional Seminar (Secondary)
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EDPE 300* (3) Educational Psychology
EDPE 304 (3) Measurement and Evaluation
EDPI 309* (3) Exceptional Students
EDPI 341 (3) Instruction in Inclusive Schools

Complementary Courses
6 credits selected as follows:
* Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the three following courses:
EDEC 233* (3) First Nations and Inuit Education
EDEC 248* (3) Multicultural Education
EDEC 249* (3) Global Education and Social Justice

3 credits, one of the two following courses:
EDEC 260* (3) Philosophical Foundations
EDEC 261* (3) Philosophy of Catholic Education

Major Concentration Physics (36 credits)
The Major Concentration Physics is a planned sequence of courses designed to permit a degree of specialization in this discipline.

Required Courses*
30 credits
* Note: Required courses taken at CEGEP or elsewhere that are not credited toward the Concurrent B.Sc. and B.Ed. must be replaced by courses from the Complementary Course List equal to or exceeding their credit value. Regardless of the substitution, students must take at least 36 credits in this program.
MATH 222  (3)  Calculus 3
MATH 223  (3)  Linear Algebra
MATH 314  (3)  Advanced Calculus
MATH 315  (3)  Ordinary Differential Equations
PHYS 230  (3)  Dynamics of Simple Systems
PHYS 232  (3)  Heat and Waves
PHYS 257  (3)  Experimental Methods 1
PHYS 333  (3)  Thermal and Statistical Physics
PHYS 340  (3)  Majors Electricity and Magnetism
PHYS 446  (3)  Majors Quantum Physics

**Complementary Courses**

6 credits selected from:

PHYS 214  (3)  Introductory Astrophysics
PHYS 224  (3)  Physics of Music
PHYS 241  (3)  Signal Processing
PHYS 258  (3)  Experimental Methods 2
PHYS 334  (3)  Advanced Materials
PHYS 534  (3)  Nanoscience and Nanotechnology

or any 300- or 400-level course approved by an adviser.

**Minor Chemistry (18 credits)**

**Required Courses**

18 credits selected as follows:

* denotes courses with CEGEP equivalents.

Substitutions for these by more advanced courses may be made at the discretion of the Adviser.

CHEM 203  (3)  Survey of Physical Chemistry
CHEM 212*  (4)  Introductory Organic Chemistry 1
CHEM 222*  (4)  Introductory Organic Chemistry 2
CHEM 253  (1)  Introductory Physical Chemistry 1 Laboratory
CHEM 281  (3)  Inorganic Chemistry 1
CHEM 287  (2)  Introductory Analytical Chemistry
CHEM 297  (1)  Introductory Analytical Chemistry Laboratory

**Additional Science Courses (15 credits)**

15 credits selected as follows:

9 credits

BIOL 210  (3)  Perspectives of Science
CHEM 381  (3)  Inorganic Chemistry 2
MATH 203  (3)  Principles of Statistics 1
plus 3 credits, one of:

- CHEM 180 (3) World of Chemistry: Environment
- CHEM 181 (3) World of Chemistry: Food
- CHEM 182 (3) World of Chemistry: Technology
- CHEM 183 (3) World of Chemistry: Drugs

plus 3 credits, one additional Physics (PHYS) course approved by the Physics Department.

**Electives (6 credits)**

6 credits, of which at least 3 credits must be Science Electives.

The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.

---

### 12.14.34.13 Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Mathematics for Teachers (135 credits)

The Concurrent Bachelor of Science (B.Sc.) and Bachelor of Education (B.Ed.) - Major Mathematics for Teachers is jointly offered by the Faculty of Science and the Faculty of Education. Separately, the Bachelor of Science degree requires 90 credits (or 120 credits for students who have not completed the basic sciences) and the Bachelor of Education degree requires 120 credits. In the concurrent program, the requirements for the two degrees are combined in such a way that students complete 135 (or 165 credits) to fulfill all the requirements for graduation for both the B.Sc. and the B.Ed.

Graduates of the B.Ed. degree are recommended by the University to the Quebec Ministère de l'Éducation, du Loisir et du Sport (MELS) for Quebec Teacher Certification. For more information about teacher certification in Quebec, please refer to the Faculty of Education section under "Overview of Faculty Programs", "Undergraduate Education Programs", and "Quebec Teacher Certification".

The Major Mathematics is one of the nine variations of the program and allows students to focus their Science degree in Mathematics.

To fulfill the requirements for graduation for the Concurrent Bachelor of Science and Bachelor of Education, the 135 credits (or 165 credits for students admitted without basic sciences) include the following:

- (30 credits of Science Freshman Program (for students admitted without basic sciences))
- 60 credits of Education Component
- 54 credits of Science Component consisting of:
  - 21 credits of Electives, of which at least 18 credits must be Science Electives, depending on how many credits count toward both the B.Sc. and the B.Ed. degrees.

For details on the counting of credits toward both degrees (double-counting) visit the program website [http://www.mcgill.ca/scienceforteachers/](http://www.mcgill.ca/scienceforteachers/).

---

### B.Sc. Freshman Program

Students who enter Science in U0 will normally be registered in the Science Freshman Program until they complete their first year. They must consult an adviser in the Science Office for Undergraduate Student Advising (SOUSA) to obtain advice and approval of their course selection. Full details are available on the SOUSA website at [http://www.mcgill.ca/science/sousa](http://www.mcgill.ca/science/sousa). Academic advising is also available by email. The address is newstudentadvising.science@mcgill.ca.

Students normally complete 30 credits which must include at least seven courses from the list of Approved Freshman Science Courses, selected as follows:

#### General Math and Science Breadth

Six of the Freshman courses must satisfy one of the following:

Option 1) 2 courses from MATH and 4 courses from BIOL, CHEM or PHYS;

or

Option 2) 3 courses from MATH and 3 courses from BIOL, CHEM or PHYS.

#### Science Complementary

The seventh course is chosen from the list of Approved Freshman Science Courses.

Notes:

1. Students who have not studied all of Biology, Chemistry, and Physics at the grade 12 level or equivalent are strongly advised to include at least one course in the missing discipline in their Freshman Program.
2. Many students will complete more than seven courses from the Approved Freshman Science Courses list, particularly those who wish to leave several options open for their choice of major.

3. Students entering the Freshman Program must be aware of the department specific requirements when selecting their courses. Detailed advising information is available at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/specifc/.

4. The maximum number of courses per term, required, complementary, and elective, is five.

**List of Approved Freshman Science Courses**

Select the approved courses according to the instructions above.

Note:

* CHEM 115 (not open to students who are taking or have taken CHEM 110 or CHEM 120)
* CHEM 120 (not open to students who have taken CHEM 115)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 111</td>
<td>(3)</td>
<td>Principles: Organismal Biology</td>
</tr>
<tr>
<td>BIOL 112</td>
<td>(3)</td>
<td>Cell and Molecular Biology</td>
</tr>
<tr>
<td>CHEM 110</td>
<td>(4)</td>
<td>General Chemistry 1</td>
</tr>
<tr>
<td>CHEM 115*</td>
<td>(4)</td>
<td>Accelerated General Chemistry: Giants in Science</td>
</tr>
<tr>
<td>CHEM 120*</td>
<td>(4)</td>
<td>General Chemistry 2</td>
</tr>
<tr>
<td>COMP 202</td>
<td>(3)</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>ESYS 104</td>
<td>(3)</td>
<td>The Earth System</td>
</tr>
<tr>
<td>MATH 133</td>
<td>(3)</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>PSYC 100</td>
<td>(3)</td>
<td>Introduction to Psychology</td>
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</table>

First calculus course, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>MATH 139</td>
<td>(4)</td>
<td>Calculus 1 with Precalculus</td>
</tr>
<tr>
<td>MATH 140</td>
<td>(3)</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 150</td>
<td>(4)</td>
<td>Calculus A</td>
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Second calculus course, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>MATH 141</td>
<td>(4)</td>
<td>Calculus 2</td>
</tr>
<tr>
<td>MATH 151</td>
<td>(4)</td>
<td>Calculus B</td>
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</table>

First physics course, one of:

<table>
<thead>
<tr>
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<th>Credit Hours</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>PHYS 101</td>
<td>(4)</td>
<td>Introductory Physics - Mechanics</td>
</tr>
<tr>
<td>PHYS 131</td>
<td>(4)</td>
<td>Mechanics and Waves</td>
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</table>

Second physics course, one of:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS 102</td>
<td>(4)</td>
<td>Introductory Physics - Electromagnetism</td>
</tr>
<tr>
<td>PHYS 142</td>
<td>(4)</td>
<td>Electromagnetism and Optics</td>
</tr>
</tbody>
</table>

**Electives**

Students wishing to take elective courses may choose them from introductory courses offered by departments in the Faculties of Science or of Arts. A list of recommended courses is found at http://www.mcgill.ca/science/sousa/new_students/u0/bsc_freshman/approved/. Certain courses offered by other faculties may also be taken, but some restrictions apply.

Consult the SOUSA website at http://www.mcgill.ca/science/sousa/continuing_students/bsc/outside/ for more information about taking courses from other faculties.
**Education Component (60 credits)**

60 credits of Education Component, consisting of:

- 54 credits of required courses
- 6 credits of complementary courses

**Required Courses**

54 credits

*Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

The English Language Requirement (EDEC 215) must be taken in the Fall semester following the Freshman year.

- EDEC 201 (1) First Year Professional Seminar
- EDEC 215 (0) English Language Requirement
- EDEC 247* (3) Policy Issues in Quebec Education
- EDEC 254 (1) Second Professional Seminar (Secondary)
- EDEC 262* (3) Media, Technology and Education
- EDEC 351 (2) Third Professional Seminar (Secondary)
- EDEC 404 (3) Fourth Year Professional Seminar (Sec)
- EDSE 350 (3) Classroom Practices (Secondary)
- EDES 353 (3) Teaching Secondary Mathematics 1
- EDES 453 (3) Teaching Secondary Mathematics 2
- EDFE 200 (2) First Field Experience (K/Elem & Secondary)
- EDFE 254 (3) Second Field Experience (Secondary)
- EDFE 351 (8) Third Field Experience (Secondary)
- EDFE 451 (7) Fourth Field Experience (Secondary)
- EDPE 300* (3) Educational Psychology
- EDPE 304 (3) Measurement and Evaluation
- EDPI 309* (3) Exceptional Students
- EDPI 341 (3) Instruction in Inclusive Schools

**Complementary Courses**

6 credits selected as follows:

*Note: The courses marked with an asterisk are counted toward both degrees. They will count as "electives" for the B.Sc. degree, although a grade of "C" or better is required.

3 credits, one of the three following courses:

- EDEC 233* (3) First Nations and Inuit Education
- EDEC 248* (3) Multicultural Education
- EDEC 249* (3) Global Education and Social Justice

3 credits, one of the two following courses:

- EDEC 260* (3) Philosophical Foundations
- EDEC 261* (3) Philosophy of Catholic Education
Major Mathematics (54 credits)

Program Prerequisites
Students entering the Major program are normally expected to have completed the courses below or their equivalents. Otherwise they will be required to make up any deficiencies in these courses over and above the 54 credits for the program.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 133</td>
<td>3</td>
<td>Linear Algebra and Geometry</td>
</tr>
<tr>
<td>MATH 140</td>
<td>3</td>
<td>Calculus 1</td>
</tr>
<tr>
<td>MATH 141</td>
<td>4</td>
<td>Calculus 2</td>
</tr>
</tbody>
</table>

Required Courses
27 credits
Where appropriate, Honours courses may be substituted for equivalent Major courses.
* Students select either MATH 249 or MATH 316 but not both.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 222</td>
<td>3</td>
<td>Calculus 3</td>
</tr>
<tr>
<td>MATH 235</td>
<td>3</td>
<td>Algebra 1</td>
</tr>
<tr>
<td>MATH 236</td>
<td>3</td>
<td>Algebra 2</td>
</tr>
<tr>
<td>MATH 242</td>
<td>3</td>
<td>Analysis 1</td>
</tr>
<tr>
<td>MATH 243</td>
<td>3</td>
<td>Analysis 2</td>
</tr>
<tr>
<td>MATH 249*</td>
<td>3</td>
<td>Honours Complex Variables</td>
</tr>
<tr>
<td>MATH 314</td>
<td>3</td>
<td>Advanced Calculus</td>
</tr>
<tr>
<td>MATH 315</td>
<td>3</td>
<td>Ordinary Differential Equations</td>
</tr>
<tr>
<td>MATH 316*</td>
<td>3</td>
<td>Complex Variables</td>
</tr>
<tr>
<td>MATH 323</td>
<td>3</td>
<td>Probability</td>
</tr>
</tbody>
</table>

Complementary Courses
27 credits selected with the following specifications:
12 credits specifically required of students in the Concurrent B.Sc. and B.Ed. Major Mathematics:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMP 202</td>
<td>3</td>
<td>Introduction to Computing 1</td>
</tr>
<tr>
<td>MATH 324</td>
<td>3</td>
<td>Statistics</td>
</tr>
<tr>
<td>MATH 338</td>
<td>3</td>
<td>History and Philosophy of Mathematics</td>
</tr>
<tr>
<td>MATH 348</td>
<td>3</td>
<td>Topics in Geometry</td>
</tr>
</tbody>
</table>

at least 3 credits from:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 317</td>
<td>3</td>
<td>Numerical Analysis</td>
</tr>
<tr>
<td>MATH 335</td>
<td>3</td>
<td>Computational Algebra</td>
</tr>
<tr>
<td>MATH 340</td>
<td>3</td>
<td>Discrete Structures 2</td>
</tr>
</tbody>
</table>

12 credits from:
It is highly recommended that students include MATH 318, MATH 328, MATH 339 and MATH 346 in their complementary courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 204</td>
<td>3</td>
<td>Principles of Statistics 2</td>
</tr>
<tr>
<td>MATH 318</td>
<td>3</td>
<td>Mathematical Logic</td>
</tr>
<tr>
<td>MATH 319</td>
<td>3</td>
<td>Introduction to Partial Differential Equations</td>
</tr>
</tbody>
</table>
Differential Geometry (3) MATH 320
Nonlinear Dynamics and Chaos (3) MATH 326
Matrix Numerical Analysis (3) MATH 327
Computability and Mathematical Linguistics (3) MATH 328
Theory of Interest (3) MATH 329
Foundations of Mathematics (3) MATH 339
Number Theory (3) MATH 346
Problem Seminar (1) MATH 352
Dynamic Programming (3) MATH 407
Majors Project (3) MATH 410
Mathematical Programming (3) MATH 417
Regression and Analysis of Variance (3) MATH 423
Mathematical Finance (3) MATH 430
Introduction to Stochastic Processes (3) MATH 447
Generalized Linear Models (4) MATH 523
Sampling Theory and Applications (4) MATH 525

In consultation with an adviser, 3 of the 12 credits may be selected from other MATH courses or related disciplines.

**Electives (21 credits)**

21 credits of electives, of which at least 18 credits must be Science Electives chosen in consultation with the Science Adviser.

The electives must be chosen in such a way that the credit counts needed for graduation are satisfied.

**12.14.35 Technological Entrepreneurship for Science Students**

**12.14.35.1 Location**

Desautels Faculty of Management
1001 Sherbrooke Street West, Suite 110
Montreal, Quebec H3A 1G5

**12.14.35.2 About Technological Entrepreneurship for Science Students**

*Please note that this program is currently under review.*

This Minor is geared to Science students with an interest in entrepreneurship and key business topics. The set of six courses will introduce you to concepts and skills needed to effectively complement the technical expertise obtained. These concepts and skills form the basis of successful companies in the high technology sector, be they start-ups, small, or medium-sized.

**12.14.35.3 Bachelor of Science (B.Sc.) - Minor Technological Entrepreneurship for Science Students (18 credits)**

(Please note that this program is currently under review.)

This Minor is geared to Science students with an interest in entrepreneurship and key business topics. The set of six courses will introduce you to concepts and skills needed to effectively complement the technical expertise obtained. These concepts and skills form the basis of successful companies in the high technology sector, be they start-ups, small or medium-sized.

Acceptance to the program is both competitive and restricted. Application procedures will be announced in September. Please consult Ron Critchley, Student Adviser, Desautels Faculty of Management Student Affairs Office, Bronfman 110, for details.

Students registered in the Minor Technological Entrepreneurship for Science Students may not take additional courses outside the Faculties of Arts and of Science.

To obtain the Minor, all courses must be completed with a grade of C or better.
Index of Courses by Subject Code and Faculty

Agricultural and Environmental Sciences, page C-5

<table>
<thead>
<tr>
<th>Subject Code</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEBI-Biology</td>
<td>C-5</td>
</tr>
<tr>
<td>AECH-Chemistry</td>
<td>C-5</td>
</tr>
<tr>
<td>AEM-English</td>
<td>C-6</td>
</tr>
<tr>
<td>AEMA-Mathematics</td>
<td>C-6</td>
</tr>
<tr>
<td>AEPH-Physics</td>
<td>C-7</td>
</tr>
<tr>
<td>AGEAG-Agricultural Economics</td>
<td>C-7</td>
</tr>
<tr>
<td>AGRI-Agriculture</td>
<td>C-8</td>
</tr>
<tr>
<td>ANSC-Animal Science</td>
<td>C-9</td>
</tr>
<tr>
<td>BINF-Biinformatics</td>
<td>C-11</td>
</tr>
<tr>
<td>BREE-Bioresource Engineering</td>
<td>C-11</td>
</tr>
<tr>
<td>BTEC-Biotechnology</td>
<td>C-14</td>
</tr>
<tr>
<td>CELC-Classics</td>
<td>C-14</td>
</tr>
<tr>
<td>ENTO-Entomology</td>
<td>C-14</td>
</tr>
<tr>
<td>ENVB-Environmental Biology</td>
<td>C-15</td>
</tr>
<tr>
<td>FAES-Faculty of Agric &amp; Envir Sci</td>
<td>C-15</td>
</tr>
<tr>
<td>FDSC-Food Science</td>
<td>C-16</td>
</tr>
<tr>
<td>LSCI-Life Sciences</td>
<td>C-17</td>
</tr>
<tr>
<td>MICR-Microbiology</td>
<td>C-18</td>
</tr>
<tr>
<td>NRSC-Natural Resource Sciences</td>
<td>C-18</td>
</tr>
<tr>
<td>NUTR-Nutrition and Dietsetics</td>
<td>C-19</td>
</tr>
<tr>
<td>PARA-Parasitology</td>
<td>C-21</td>
</tr>
<tr>
<td>PLNT-Plant Science</td>
<td>C-22</td>
</tr>
<tr>
<td>SOIL-Soil Science</td>
<td>C-23</td>
</tr>
<tr>
<td>WILD-Resource Development</td>
<td>C-23</td>
</tr>
<tr>
<td>WOOD-Woodland Resources</td>
<td>C-24</td>
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</table>

Faculty of Arts, page C-25

<table>
<thead>
<tr>
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</tr>
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<tbody>
<tr>
<td>AFRI-African Studies</td>
<td>C-25</td>
</tr>
<tr>
<td>ANTH-Anthropology</td>
<td>C-25</td>
</tr>
<tr>
<td>ARTH-Art History</td>
<td>C-30</td>
</tr>
<tr>
<td>CANS-Canadian Studies</td>
<td>C-33</td>
</tr>
<tr>
<td>CATH-Catholic Studies</td>
<td>C-34</td>
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<tr>
<td>CLAS-Classics</td>
<td>C-34</td>
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<tr>
<td>COMS-Communication Studies</td>
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<tr>
<td>EAST-Asian Language &amp; Literature</td>
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<tr>
<td>ECON-Economics</td>
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<tr>
<td>ENGL-English</td>
<td>C-46</td>
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<tr>
<td>FILM-World Cinemas</td>
<td>C-51</td>
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<tr>
<td>FREN-French</td>
<td>C-51</td>
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<tr>
<td>FRSL-French as a Second Language</td>
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<tr>
<td>GERM-German</td>
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<tr>
<td>HIS-HISP-Hispanic Studies</td>
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<tr>
<td>HIS-HIST-History</td>
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<tr>
<td>HPSC-HPS-Hist &amp; Phil of Science</td>
<td>C-71</td>
</tr>
<tr>
<td>HSEL-Health Science Electives</td>
<td>C-71</td>
</tr>
<tr>
<td>IDF-Interdisciplinary Field Course</td>
<td>C-72</td>
</tr>
<tr>
<td>INTD-International Development</td>
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<table>
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<tbody>
<tr>
<td>ISLA-Islamic Studies</td>
<td>C-72</td>
</tr>
<tr>
<td>ITAL-Italian</td>
<td>C-75</td>
</tr>
<tr>
<td>JWST-Jewish Studies</td>
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<tr>
<td>LACS-Latin American &amp; Caribbean St</td>
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</tr>
<tr>
<td>LING-Linguistics</td>
<td>C-82</td>
</tr>
<tr>
<td>MEST-Middle East Studies</td>
<td>C-84</td>
</tr>
<tr>
<td>MUAR-Music-Arts Faculty</td>
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<tr>
<td>NAST-North American Studies</td>
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</tr>
<tr>
<td>PHIL-Philosophy</td>
<td>C-85</td>
</tr>
<tr>
<td>PHWR-Philosophy &amp; Western Religions</td>
<td>C-89</td>
</tr>
<tr>
<td>PLAI-Public Life of Arts &amp; Ideas</td>
<td>C-90</td>
</tr>
<tr>
<td>POLI-Political Science</td>
<td>C-90</td>
</tr>
<tr>
<td>QCST-Quebec Studies</td>
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</tr>
<tr>
<td>RUSCH-Russian</td>
<td>C-96</td>
</tr>
<tr>
<td>SDST-Sexual Diversity Studies</td>
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</tr>
<tr>
<td>SOCI-Sociology</td>
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</tr>
<tr>
<td>SWRK-Social Work</td>
<td>C-103</td>
</tr>
<tr>
<td>WMST-Women's Studies</td>
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</table>

Interfaculty, B.A. & Sc., page C-107

<table>
<thead>
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<th>Subject Code</th>
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</thead>
<tbody>
<tr>
<td>BASC-BASC-Arts &amp; Science</td>
<td>C-107</td>
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<tr>
<td>COGS-COGS-Cognitive Science</td>
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<td>EDSL-EDSL-Education in Second Languages</td>
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<td>EDTL-EDTL-Education Teaching &amp; Learning</td>
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Always check at [www.mcgill.castudy](http://www.mcgill.castudy) for the most up-to-date information on whether a course is offered.

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- Indicates that departmental approval/permission must be obtained by a student prior to registration.
- Denotes courses taught only in alternate years.
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- Denotes courses with limited enrolment.
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Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

● Denotes courses taught only in alternate years.
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‡ Professional Practice (Stage) in Dietetics involving special prerequisites
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❖ Denotes courses with limited enrolment.
## By Subject Code

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<td>MUGT-General Music Techniques</td>
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<td>MUHL-Music History and Literature</td>
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<td>PHYS-Physics</td>
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<td>PLAI-Public Life of Arts &amp; Ideas</td>
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<td>WOOD-Woodland Resources</td>
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Agricultural and Environmental Sciences

AEBI-Biology
Offered by: Bioresource Engineering, Plant Science, Natural Resource Sciences

AEBI 120 General Biology.
(3) (Fall) (2 lectures and one 3-hour lab) (Restriction: Not open to students who have passed CEGEP objective 00UK or equivalent (formerly Biology 301)) An introduction to the structure, function and adaptation of plants and animals in the biosphere.

AEBI 122 Cell Biology.
(3) (Provides a prerequisite for later courses in cell biology.)
(Prerequisite: AEBI 110) (Restriction(s): Open only to Freshman students in FAES; not equivalent to LSCI 202; not open to students who have taken CEGEP competency OOXU or equivalent, or BIOL 112.) Chemical basis for cell biology; enzymes in biological reactions; membranes and the cell surface; cellular energetics; cell synthesis and growth; mitosis, meiosis and genetic consequences.

AEBI 210 Organisms 1.
(3) (Restriction(s): Not open to students who have taken PLNT 201 or PLNT 211) (2 hour lecture and 3 hour lab) The biology of plants and plant-based systems in managed and natural terrestrial environments. The interactions between autotrophs and soil organisms and selected groups of animals with close ecological and evolutionary connections with plants (e.g., herbivores and pollinators) will be explored in lecture and laboratory.

AEBI 211 Organisms 2.
(3) (Winter) (Restriction: Not open to students who have taken WILD 200) Introduction to the biology, physiology, structure and function of heterotrophs and their interactions with other organisms. This course will focus on animals in terrestrial, freshwater and marine environments. Topics include bioenergetics and functional metabolism, adaptations to environments, animal-animal, animal-plant, and animal-pathogen interactions.

AEBI 212 Evolution and Phylogeny.
(3) (Winter) (Restriction: Not open to students who have taken WILD 212) A phylogenetic-based overview of the tree of life and examination of relationships between major taxa, from bacteria and archaea to eukaryotes. Evolution will be discussed via topics including: evolution by natural selection, neo-Darwinism and alternatives, myths and misconceptions in evolution, species and speciation.

AEBI 421 Tropical Horticultural Ecology.
(3) (Corequisite(s): AEBI 423, AEBI 425, AEBI 427)
( Restriction: Restricted to students that are participating in the Barbados Interdisciplinary Tropical Studies Field Semester) A comprehensive survey of the major fruit, vegetable, turf, and ornamental crops grown in Barbados. Effect of cultural practices, environment, pests and pathogens, social and touristic activities, and impact of horticultural produce on local horticulture.

AEBI 423 Sustainable Land Use.
(3) (Corequisite(s): AEBI 421, AEBI 425, AEBI 427)
( Restriction: Restricted to students that are participating in the Barbados Interdisciplinary Tropical Studies Field Semester) Management, preservation, and utilization of forage crops in sustainable tropical environments; examination of their value as livestock feed in terms of nutritional composition and impact on animal performance; land use issues as it pertains to forage and livestock feed in terms of nutritional composition and impact on the Barbados Interdisciplinary Tropical Studies Field Semester.

AEBI 425 Tropical Energy and Food.
(3) (Corequisite(s): AEBI 421, AEBI 423 and AEBI 427) (Restriction: Restricted to students that are participating in the Barbados Interdisciplinary Tropical Studies Field Semester) Tropical biofuel crops, conversion processes and final products, particularly energy and greenhouse gas balances and bionutraceuticals. Topics include effects of process extraction during refining on biofuel economics, the food versus fuel debate and impact of biofuels and bioproducts on tropical agricultural economics.

AEBI 427 Barbados Interdisciplinary Project.
(6) (Corequisite(s): AEBI 421, AEBI 423 and AEBI 425) (Restriction(s): Restricted to students that are participating in the Barbados Interdisciplinary Tropical Studies Field Semester) The planning of projects and research activities related to tropical food, nutrition, or energy at the local, regional, or national scale in Barbados. Projects and activities designed in consultation with university instructors, government, NGO, or private partners, and prepared by teams of 2-3 students working cooperatively with these mentors.

AEBI 451 Research Project 1.
(3) (This course is now LSCI 451. Please see LSCI 451 for course information.

AEBI 452 Research Project 2.
(3) (This course is now LSCI 452. Please see LSCI 452 for course information.

AEBI 491 Scientific Communication.
(1) (Fall and Winter) (Prerequisite: AEHM 205)
( Restriction(s): Not open to students who have taken NRSC 491 or NRSC 492 or NRSC 391) Students will research and present a seminar on an approved topic, with the goal of developing their research and oral presentation skills. Presentations will include elements of the experimental science method (goals, hypotheses, methods, results, interpretations) and detailed coverage of at least one experiment.

AEBI 492 Scientific Communication.
(1) (Fall) (Prerequisite: AEHM 206)
( Restriction(s): Not open to students who have taken NRSC 491 or NRSC 492 or NRSC 391) Students will research and present a seminar on an approved topic, with the goal of developing their research and oral presentation skills. Presentations will include elements of the experimental science method (goals, hypotheses, methods, results, interpretations) and detailed coverage of at least one experiment.

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AEMA 100 Precalculus Mathematics.
(3) (Summer) (Restrictions: Open only to students who have taken or are taking AEMA 111, CHEM 120, or CHEM 122.) The laboratory component of AEMA 111. Illustrative experiments.

AEMA-Mathematics

AEMA 205 Science Literacy.
(3) (Students whose first language is not English are encouraged to register for CESL 299, ESL: Academic English Seminar, or equivalent, prior to starting their program.) Development of English language and information literacy. Problem-based approach using science topics from specializations offered by the Faculty will be central to skill development. The course includes how to research and compose work in scientific format and will encourage a reader-oriented style.

AEMA 300 ESL: High Intermediate 1.
(3) (Hours) (Prerequisite: placement test) (Restrictions: open to full-time, non-anglophone students. Not eligible for ESL courses are: 1. non-anglophone students who, for a period of more than four years, have attended secondary institutions (high school and CEGEP) where the primary language of instruction was English, and 2. students who have taken university-level courses judged to be equivalent to the McGill courses AEHM 300 and ESLN 300 and CESL 300; AEHM 301 and ESLN 301 and CESL 301. These courses are equivalent and mutually exclusive.) (Students too weak in English for AEMH 300 should inquire about the CESL 200 and CESL 201 courses offered on the Downtown Campus by the McGill Writing Centre.) Improves proficiency of general writing skills while developing reading, oral and aural skills. Focuses on the structure of the English language and the process required to produce coherent short papers. Emphasis on the English of food, agriculture, and the environment.

AEMA 301 ESL: High Intermediate 2.
(3) (Hours) (Prerequisite: AEMH 300 or placement test) (Restrictions: open to full-time, non-anglophone students. Not eligible for ESL courses are: 1. non-anglophone students who, for a period of more than four years, have attended secondary institutions (high school and CEGEP) where the primary language of instruction was English, and 2. students who have taken university-level courses judged to be equivalent to the McGill courses AEHM 300 and ESLN 300 and CESL 300; AEHM 301 and ESLN 301 and CESL 301. These courses are equivalent and mutually exclusive.) (Students too weak in English for AEMH 300 should inquire about the CESL 200 and CESL 201 courses offered on the Downtown Campus by the McGill Writing Centre.) A continuation of AEMH 300. Further improves proficiency of general writing skills while developing reading, oral and aural skills. Focuses on the structure of the English language and the process required to produce coherent short papers. Emphasis on the English of food, agriculture, and the environment.

AEMA 330 Academic and Scientific Writing.
(3) (Hours) (Prerequisite: entrance test.) The object of the course is to enable students who have previously mastered the basic elements of written English to produce well-written, well-researched, and well-documented scientific papers for an academic audience.

AEMA-Environmental Literature

AEMA 101 Calculus 1.
(3) (Fall) (3 lectures) (Prerequisite: a course in functions) A review of functions and graphs. Limits, continuity, derivatives. Differentiation of elementary functions. Anti-differentiation. Applications.

AEMA 102 Calculus 2.
(4) (Winter) (3 lectures) (Prerequisite: Calculus 1 or equivalent) Integration, the indefinite and definite integral. Trapezoidal and Simpson's Rule approximations for the integral. Applications to areas between curves, distance, volume, length of a curve, work, area of a surface of revolution, average values, moments, et c. Improper integrals and infinite series.

AEMA 105 Precalculus Lab.
(1) (1.0 credit) (2 lab hours per week; normally taken concurrently with AEMA 101 Calculus 1) (Restrictions: Open only to students in FAES whose background is deficient in Pre calculus mathematics. Not open to students who have taken CEGEP competency OOUQ, AEMA 102, or equivalent. Not open to students who have taken AEMA 100 or MATH 112. Permission of instructor required.) Problem-solving: foundational material in algebra concepts, functions and graphs, polynomials and rational functions, exponential and logarithmic functions, graphs and equations, trigonometry, analytic trigonometry, systems of linear equations, sequences & series.

AEMA 202 Intermediate Calculus.
(3) (Fall) (3 lectures and 1 conference) (Restrictions: Not open to students who have taken MATH 222) (Prerequisites: BREE 103 and AEMA 102 or equivalent CEGEP objectives 00UP and 00UQ or permission of instructor) Partial differentiation; multiple integrals; vector calculus; infinite series; and introduction to the use of computer-based mathematical tools in applications.

AEMA 305 Differential Equations.
(3) (Winter) (Restrictions: Not open to students who have taken MATH 315) (Prerequisite: AEMA 202 or equivalent) First and second order differential equations, Laplace transforms, numerical solutions, systems of differential equations, series solutions, applications to biological, chemical and engineering systems, use of computer-based mathematical tools.

AEMA 310 Statistical Methods 1.
(3) (Two 1.5-hour lectures and one 2-hour lab) Measures of central tendency and dispersion; binomial and Poisson distributions; normal, chi-square, Student's t and Fisher-Snedecor F distributions; estimation and hypothesis testing; simple linear regression and correlation; analysis of variance for simple experimental designs.

AEMA 403 Environmetrics Stage.
(3) (Limited enrolment: Registration by application - Deadline December 15; the first seven applications received will have priority) (Prerequisite: Permission of the instructor based on satisfactory completion of the U2 year of the Environmetrics Domain in the McGill School of Environment) Summer stage of at least four weeks, including a report. Provides students with professional experience in statistical analyses of environmental data. Can be undertaken at federal or provincial research stations and university research laboratories.

AEMA 406 Quantitative Methods: Ecology.
(3) (This course is now ENVB 506. Please see ENVB 506 for course information.)

AEMA 411 Experimental Designs 01.
(3) (Two 1.5-hour lectures) (Prerequisite: AEMA 310 or equivalent) (Offered in alternate years with AEMA 414) (You may not be able to receive credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) General principles of experimental design, split-plot designs, spatial heterogeneity and experimental design, incomplete block designs and unbalanced designs, analysis of repeated measures, multivariate and modified univariate analyses of variance, central composite designs.

AEC 119 General Chemistry Laboratory 2.
(1) (Winter) (Prerequisite: Permission of instructor.) (Restrictions: Open only to entering students who have the equivalent of ACH 111. Not open to students who have taken or are taking ACH 111, CHEM 120, or CHEM 122.) The laboratory component of ACH 111. Illustrative experiments.
AEMA 414 Temporal and Spatial Statistics 01.
(3) (Two 1.5-hour lectures) (Prerequisite: AEMA 310 or equivalent) (Offered in alternate years with AEMA 411) Temporal statistics: analysis in the time domain, Box-Jenkins forecasting methodology, analysis in the frequency domain, periodogram analysis. Spatial statistics: mapping, autocorrelogram analysis, geostatistics. Statistical inference with autocorrelated sample data.

AEPH-Physics
Offered by: Bioresource Engineering

AEPH 110 Preparatory Physics.
(3) (Note: This course is given during a three to four week period prior to commencement of the normal Fall semester.) An introduction to properties of matter, heat and temperature, light, magnetism, electric circuits, optics and kinematics. This course does not count as credit towards students' degree program.

AEPH 112 Introductory Physics 1.
(4) (Fall) (3 lecture hours, 2 lab hours, 2 tutorial hours) (Prerequisite: AEMA 100 (or MATH 112) and AEPH 110, or equivalents, or permission of instructor) (Corequisite: AEMA 101) (Note: Not open to students who have taken PHYS 101 or PHYS 131 or AEPH 115 or CEGEP objective 00UR or equivalent. Not open to students in Bioresource Engineering.) Accelerated motion. Newton’s Laws. Force, work and energy, power; momentum. Conservation principles. Circular motion. Simple harmonic motion. Waves and sound.

AEPH 113 Physics 1.
(4) (3 lectures, one 2-hour lab and tutorial) (Prerequisite: Precalculus Mathematics AEMA 100 or equivalent. Preparatory Physics AEPH 110 or equivalent) (Corequisite: AEMA 101) (Note: Not open to students who have taken AEPH 112, PHYS 101 or PHYS 131, and open to students in Bioresource Engineering) The basic laws and principles of Newtonian mechanics - oscillations and waves. Includes calculus-based applications.

AEPH 114 Introductory Physics 2.
(4) (Winter) (3 lecture hours, 2 lab hours, 2 tutorial hours) (Prerequisite: AEPH 112 or AEPH 113 or PHYS 101 or PHYS 131 or CEGEP objective 00UR or equivalents, or permission of instructor) (Corequisite: AEMA 102 or (MATH 141 or higher level calculus course) or CEGEP objective 00UP, or permission of instructor.) (Restriction: Not open to students who have taken PHYS 102 or PHYS 142 or AEPH 115 or CEGEP objective 00US or equivalent. Not open to students in Bioresource Engineering.) Electric and magnetic properties of matter: electrostatics, electric currents, the link between electric and magnetic phenomena, geometrical optics, interference diffraction.

AEPH 115 Physics 2.
(4) (3 lectures, one 2-hour lab and tutorial) (Prerequisites: AEPH 113, AEMA 101) (Corequisite: AEMA 102) (Note: Not open to students who have taken AEPH 114, PHYS 102 or PHYS 142, and open only to students in Bioresource Engineering) The basic laws of electricity and magnetism - geometrical and physical optics. Includes calculus-based applications.

AEPH 120 Physics Laboratory 1.
(1) (Fall) (Prerequisite: Permission of instructor.) (Restrictions: Open only to entering students who have the lecture equivalent of AEPH 112 or AEPH 113. Not open to students who have taken or are taking AEPH 112, AEPH 113, PHYS 101, PHYS 107, PHYS 117, PHYS 131.) The laboratory component of AEPH 112/AEPH 113. Illustrative experiments.

AEPH 122 Physics Laboratory 2.
(1) (Winter) (Prerequisite: Permission of instructor.) (Restrictions: Open only to entering students who have the lecture equivalent of AEPH 114 or AEPH 115. Not open to students who have taken or are taking AEPH 114, AEPH 115, PHYS 102, PHYS 108, PHYS 118, PHYS 142.) The laboratory component of AEPH 114/AEPH 115. Illustrative experiments.

AGEC-Agricultural Economics
Offered by: Agricultural Economics, Natural Resource Sciences

AGEC 200 Principles of Microeconomics.
(3) (Fall) (3 lectures) The field of economics as it relates to the activities of individual consumers, firms and organizations. Emphasis is on the application of economic principles and concepts to everyday decision making and to the analysis of current economic issues.

AGEC 201 Principles of Macroeconomics.
(3) (Winter) (3 lectures) (Prerequisite: AGEC 200 or equivalent) The overall economic system, how it works, and the instruments used to solve social problems. Emphasis will be on decision-making involving the entire economic system and segments of it.

AGEC 231 Economic Systems of Agriculture.
(3) (Winter) (3 lectures) (Prerequisite: AGEC 200 or equivalent) The structure and organization of Canada's agriculture-food system, the operation, financing, linkages, and functions of its components. Focus to be on management of the various components and the entire system, types of problems confronted now and in the future.

AGEC 242 Management Theories and Practices.
(3) (Fall) (3 lectures) An introduction to contemporary management theories and practices in organizations of the food sector.

AGEC 320 Intermediate Microeconomic Theory.
(3) (Winter) (3 lectures) (Prerequisite: AGEC 200 or equivalent) An intermediate theory course in agricultural economics, dealing with economic concepts as applied to agricultural production and cost functions. Includes theory and application of linear programming as related to production decisions.

AGEC 330 Agriculture and Food Markets.
(3) (Fall) (Prerequisite: AGEC 200 or equivalent) (Restriction: Not open to students who have taken AGEC 440) Nature and organization of agricultural and food markets as economic institutions, including the application of economic theory to problems within the agri-food marketing chain. Spatial and temporal price relationships, and the role of market structure.

AGEC 332 Farm Management and Finance.
(3) (Fall) (Prerequisite: AGEC 200 or equivalent) (Restriction: Not open to students who have taken AGEC 331 or AGEC 350) Managing and financing a farm business. Topics include: the decision making process, farm management and economic concepts, the analysis of financial statements, farm planning and budgeting, input management, investment analysis,
risk in financial management, the acquisition and cost of capital.

**AGEC 333 Resource Economics.**
(3) (Fall) (Prerequisites: AGEC 200 or equivalent) The role of resources in the environment, use of resources, and management of economic resources within the firm or organization. Problem-solving, case studies involving private and public decision-making in organizations are utilized.

**AGEC 343 Accounting and Cost Control.**
(3) (Fall) (3 lectures) An introduction to the basic principles and concepts of responsibility accounting and cost control, analysis and utilization of financial statements and control system data for decision making.

**☆AGEC 425 Applied Econometrics.**
(3) (Fall) (3 lectures) (Prerequisites: AEMA 310, AGEC 200 and AGEC 201 or equivalents) The theory and application of econometrics to empirical issues in agriculture and environment. Diagnosis and treatment of standard violations of the assumptions underlying ordinary least squares.

**AGEC 430 Agriculture, Food and Resource Policy.**
(3) (Winter) (3 lectures) (Prerequisites: AGEC 200 or equivalent) Examination of North American and international agriculture, food and resource policies, policy instruments, programs and their implications. Economic analysis applied to the principles, procedures and objectives of various policy actions affecting agriculture, and the environment.

**AGEC 442 Economics of International Agricultural Development.**
(3) (Winter) (3 lectures) (Prerequisites: AGEC 200 or AGEC 201 or equivalent) The course deals with economic aspects of international development with emphasis on the role of food, agriculture and the resource sector in the economy of developing countries. Topics will include world food analysis, development project analysis and policies for sustainable development. Development case studies will be used.

**☆AGEC 450 Agriculture Business Management.**
(3) (Winter) (3 lectures) (Prerequisites: AGEC 230 and AEMA 310) Management of operations in agribusiness firms. The use of computer models to make decisions on output mix, facility location, expansion, inventory management and production and strategy.

**AGEC 491 Research & Methodology.**
(3) (Fall) (3 lectures) (Prerequisites: AGEC 201 or equivalent, and AGEC 320) Conceptual and philosophical foundations of research methodology, and the procedural aspects of planning, designing and conducting research in applied economics.

**AGEC 492 Special Topics in Agricultural Economics 01.**
(3) (Fall, Winter) (Prerequisite: AGEC 201 or equivalent) Students will pursue topics that are not otherwise available in formal courses. An individual course of study will be followed under the supervision of a member of the staff qualified in the appropriate discipline or area.

**AGEC 493 Special Topics in Agricultural Economics 02.**
(3) Presentation and discussion of current problems in agricultural economics by staff and/or special guests. This course is offered on an irregular basis under special circumstances.

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**AGRI-Agriculture**

Offered by: Bioresource Engineering, Food Science & Agr-Chemistry, Plant Science, Natural Resource Sciences, Animal Science, Agricultural & Env.Sc.-Dean

**AGRI 120 Exobiospheres.**
(3) (Restriction: Open only to students in the Freshman Program of FAES on Macdonald Campus.) (Note: Not equivalent to EPSC 205/ANAT 205.) Introduction to basic astronomical, biological, chemical and (geo)physical principles of systems capable of giving rise to and sustaining living structures, in both natural and artificial biospheres, within our solar system and beyond.

**AGRI 195 Freshman Seminar 1.**
(0.5) (Fall) (Restriction: Open only to Freshman Students. Not open to students who have taken BREE 187) Members of the Faculty and/or Student Services will present seminars on resources available to help students develop the requisite skills to facilitate their transition into university life.

**AGRI 196 Freshman Seminar 2.**
(0.5) (Winter) (Restriction: Freshman students) Member of the Faculty will present seminars on topical issues about their area of research.

**AGRI 210 Agro-Ecological History.**
(3) (3 lectures) Introduction to the environmental consequences of agriculture through time, relating the cultural diversity of agronomic practices to regionally varied ecological processes.

**AGRI 215 Agro-Ecosystems Field Course.**
(3) (Restriction: Not open to students who have taken PLNT 215.) Through case studies and field trips, students will examine the problems and constraints within the Canadian agro-ecosystem, including the interrelationships among food production, the environment, agricultural policy and social issues. Research in this field of study will also be introduced.

**AGRI 295 Undergraduate Seminar 1.**
(0.5) (Restriction(s): Open only to U1 students. Not open to students who have taken AGRI 195 or BREE 187) Members of the Faculty and/or Student Services will present seminars on resources available to help students develop the requisite skills to facilitate their transition into university life.

**AGRI 296 Undergraduate Seminar 2.**
(0.5) (Restriction(s): Open only to U1 students. Not open to students who have taken AGRI 196 or BREE 188) Members of the Faculty will present seminars on topical issues about their area of research.

**☆AGRI 305 Barbados Agro-Ecosystems.**
(3) Complexities affecting sustainable agriculture of a small island nation. Social, economic and physical factors that influence environmental choices. Includes lectures at Macdonald campus and a 12-day stay at Bellairs, Barbados.

**AGRI 310 Internship in Agriculture/Environment.**
(3) (Restriction: Not open to students who have taken AGRI 201D1/D2.) Internship on working farms or in other appropriate businesses of the agri-food/environment industries.

**AGRI 330 Agricultural Legislation.**
(1) (Restriction: Not open to students who have taken AGRI 220, AGRI 221, AGRI 320, AGRI 321, AGRI 420) A study of Quebec legislation of importance to the agricultural sector, with emphasis on the reasons why these laws were implemented and on their net effects on this sector. Some Canadian laws will be covered but only inasmuch as they affect Quebec agriculture.

**AGRI 340 Principles of Ecological Agriculture.**
(3) (3 lectures and one 2-hour seminar) (Restriction: Not open to students who have taken AGRI 250) Focus on low-input, sustainable, and organic agriculture: the farm as an ecosystem; complex system theory; practical examples of soil management, pest control, integrated crop and livestock production, and marketing systems.

**AGRI 410D1 (3), AGRI 410D2 (3) Agrology Internship.**
(Restriction: Not open to students who have taken AGRI 301D1/D2) Professional internship (stage) under the supervision of a practicing agrologist.

**AGRI 411 Global Issues on Development, Food and Agriculture.**
(3) (Winter) (3 lectures and 1 conference) International development and world food security and challenges in developing countries. Soil and water management, climate change, demographic issues, plant and animal resources conservation, bio-products and biofuels, economic and environmental issues specially in tropical and sub-tropical regions. Globalization, sustainable development, technology transfer and human resources needs for rural development.

**AGRI 421 Professional Practice Seminar 6.**
(0.5) Experiences and responsibilities of Agrologists; legal and ethical aspects of the profession.
AGRI 430 Professional Practice in Agrology.
(2) (Restriction: Not open to students who have taken AGRI 221; AGRI 320; AGRI 321; AGRI 420; AGRI 421)
Experiences and responsibilities of agrologists; legal and ethical aspects of the profession; communication and client relationships.

AGRI 435 Soil and Water Quality Management.
(3) (Fall) (3 lectures and one 3-hour lab) Management of soil and water systems for sustainability. Cause of soil degradation, surface and groundwater contamination by agricultural chemicals and toxic pollutants. Human health and safety concerns. Water-table management. Soil and water conservation techniques will be examined with an emphasis on methods of prediction and best management practices.

AGRI 452 Water Resources in Barbados.
(3) (Restrictions: Enrolment in full “Barbados Field Study Semester”. Not open to students who have taken CIVE 452.) Physical environment challenges, centered on water, being faced by an island nation. Guest speakers, field study tours and laboratory tests. Private, government and NGO institutional context of conservation strategies, and water quantity and quality analyses for water management specific to Barbados.

AGRI 480 Special Topics 1.
(1)

AGRI 481 Special Topics 2.
(2)

AGRI 482 Special Topics 3.
(3)

AGRI 490 Agri-Food Industry Project.
(3) Interdisciplinary team project in the agri-food industry.

AGRI 491D1 (1.5), AGRI 491D2 (1.5) Co-op Experience.
(Students must register for both AGRI 491D1 and AGRI 491D2.) (No credit will be given for this course unless both AGRI 491D1 and AGRI 491D2 are successfully completed in consecutive terms) A co-op experience program of at least 12 weeks duration. Students will be exposed to the main areas of operation of their employer. The cooperating employer and the Instructor (or designate) will develop an individualized co-op experience for each student. Students will be supervised by staff of their employer who will be in contact with the instructor (or designate). A site visit by the Instructor (or designate), a report by the student’s employer and a final written and oral report by the student will form the basis for evaluation.

AGRI 493 International Project Management.
(3) Principles and practice related to management of agriculture, nutrition and environmental projects within an international context. Case-studies and workshops drawing on expertise of development professionals from government and the private sector address techniques and resources for successful planning, implementation and evaluation within a multi-sectoral framework.

AGRI 495 Seminar and Assignment 1.
(1) (Restriction: Not open to students registered in, or who have taken AGRI 495D1/D2 or AGRI 495N1/N2) Preparation, presentation and discussion of reports upon approved agricultural subjects chosen in consultation with staff members involved in the subject concerned.

AGRI 496 Seminar and Assignment 2.
(1) (Restriction: Not open to students registered in, or who have taken AGRI 495D1/D2 or AGRI 495N1/N2) Preparation, presentation and discussion of reports upon approved agricultural subjects chosen in consultation with staff members involved in the subject concerned.

AGRI 498 Agricultural Development Research.
(3) (Prerequisite: Permission of instructor) (Restriction: Open only to U2 or U3 students in the IAFS major.) Supervised reading and research project related to agriculture, food systems, nutrition and health in developing countries.

AGRI 499 Agricultural Development Internship.
(3) (Prerequisite: Permission of instructor) (Restriction: Open only to U2 or U3 students in the IAFS major.) Supervised internship in a developing country and/or for an organization engaged in agricultural development.

AGRI 510 Professional Practice.
(3) (Restriction: Course restricted to senior undergraduate and graduate students.) The ethical issues that face a professional in the workplace; professional ethics and deontology; professional responsibilities as related to the laws of labour, health, safety and risks to the environment, risk management and communication.

AGRI 519 Sustainable Development Plans.
(6) (Restrictions: Enrolment in full “Barbados Field Study Semester”. Not open to students who have taken CIVE 519 or URBP 519.) Geared for solving real-world environmental problems related to water at the local, regional and international scale in Barbados. Projects to be designed by instructors in consultation with university, government and NGO partners and to be conducted by teams of 2 to 4 students in collaboration with them.

AGRI 550 Sustained Tropical Agriculture.
(3) (Prerequisites: HISP 218 or equivalent; MATH 203 or AEMA 310 or equivalent) (Restriction: Restricted Enrolment. Location in Panama. Student must be registered for a full semester of studies in Panama) Contrast theory and practice in defining agricultural environmental “challenges” in the Neotropics. Indigenous and appropriate technological means of mitigation. Soil management and erosion, water scarcity, water over-abundance, and water quality. Explore agro-ecosystem protection via field trips and project designs. Institutional context of conservation strategies, NGO links, and public participation.

ANSC-Animal Science
Offered by: Animal Science

ANSC 234 Biochemistry 2.
(3) (Winter) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 211 or LSCI 211) Metabolism in humans and domestic animals. The chemistry of alimentary digestion, absorption, transport, intermediary metabolism and excretion.

ANSC 250 Principles of Animal Science.
(3) (Fall) (3 lectures and one 2-hour lab) Introduction to the scientific principles underlying the livestock and poultry industries. Emphasis will be placed on the breeding, physiology and nutrition of animals raised for the production of food and fibre.

ANSC 251 Comparative Anatomy.
(3) (Winter) (3 lectures and one 3-hour lab) Study of the macroscopic anatomy of mammals based on detailed dissection of the dog. Comparison with other domestic species will be emphasized.

ANSC 301 Principles of Animal Breeding.
(3) (Winter) (3 lectures and one 2-hour lab) (Prerequisite: AEMA 310 or equivalent) The qualitative and quantitative aspects of genetics as they apply to the economic improvement of domestic mammals and birds. Topics include: animal domestication, animal cytology, Mendelian traits of economic importance, principles of population genetics, statistical tools to describe populations, environmental effects, selection and...
ANSC 303 Farm Livestock Internship.
(2) (Fall or Winter) (Prerequisite: ANSC 250 (or equivalent, or permission)) Practical experience in the day-to-day management of a major livestock species (dairy, swine, poultry, or specific combination) on the Macdonald Campus Farm. Interaction with personnel and training in the operations of a farm-animal enterprise.

ANSC 312 Animal Health and Disease.
(3) (Winter) (3 lectures and one 2-hour conference) An introduction to the pathogenesis and control of diseases in farm animals. Immune response and other protective mechanisms. Implications of animal diseases and drug therapy for product safety and public health.

ANSC 323 Mammalian Physiology.
(3) (Fall) (3 lectures and one 3-hour lab) (Prerequisite: AEBI 202 or LSCI 202 or permission of instructor) A study of the organization, functions and regulation of various organ systems in mammals. The nervous, endocrine, muscular, cardiovascular, respiratory, urinary, digestive and reproductive systems are discussed.

ANSC 324 Developmental Biology and Reproduction.
(3) (Winter) (3 lectures and one 3-hour lab) (Prerequisites: FDSC 211 or LSCI 211, and ANSC 323) Focus on the hormonal, cellular and molecular aspects of reproduction and development (gametogenesis, folliculogenesis, fertilization, embryonic and fetal development, parturition, lactation period, periods before and after puberty). Emphasis on underlying cellular mechanisms and their regulation by hormones and the environment.

(3) (Fall) (Prerequisites: AEMA 310 or equivalent or permission of instructor and CELL 204 or LSCI 204 or equivalent or permission of instructor.) Population genetics mechanisms in mammals, birds and plants. Factors influencing gene, genotype, and phenotypic frequencies. Effects of different types of selection, Hardy-Weinberg, linkage and recombination, polymorphisms and heterozygosity, population size, random drift and inbreeding on gene and genotype frequencies. Relationship between quantitative genetic parameters and gene frequencies.

ANSC 330 Fundamentals of Nutrition.
(3) (Fall) (3 lectures) (Prerequisite(s): FDSC 211 or LSCI 211 and ANSC 234 (ANSC 234 pre-req applies to students in B.Sc. Nutritional Sciences only).) A discussion of the nutrients; water, carbohydrates, lipids, proteins, minerals and vitamins, with particular emphasis on their functions in and essentially for the animal organism.

ANSC 350 Food-Borne Pathogens.
(3) (Winter) (Prerequisite: MICR 230 or LSCI 230, or permission of instructor) Exploration of the taxonomy, characteristics, epidemiology, mechanisms of pathogenicity, disease, incidence, and factors affecting the survival and growth of pathogenic microorganisms in foods of animal origin; principles of detection, prevention and control of food-borne pathogens (bacteria, fungi, protozoa, helminths, viruses).

ANSC 400 Eukaryotic Cells and Viruses.
(3) (Winter) (Prerequisites: CELL 204 or LSCI 204) (Restrictions: Not open to students who have taken PARA 400.) The basic principles of molecular biology and the underlying molecular basis for various methodologies in molecular biology are covered. The molecular genetic basis for viral infections and tumorigenesis will be covered as examples of the use of molecular genetic approaches to address biological problems.

ANSC 420 Animal Biotechnology.
(3) (Fall) (Prerequisites: AEBI 202 or LSCI 202 and MICR 230 or LSCI 230) Applications of animal biotechnology in agriculture, biomedicine and environmental preservation, including culture, manipulation and transformation of somatic cells, isolation of stem cells, reproductive biotechnologies, animal cloning by nuclear transplantation, production of transgenic animals, and cell and gene therapies.

ANSC 424 Metabolic Endocrinology.
(3) (Winter) (3 lectures and one 3-hour lab) (Prerequisite: ANSC 323) A detailed study of the endocrine system and its role in the maintenance of homeostasis in higher vertebrates, including the endocrine regulation of energy balance.

ANSC 433 Animal Nutrition.
(3) (Winter) (3 lectures and one 1-hour lab) (Prerequisites: ANSC 234 or ANSC 330 or permission of instructor) Critical discussion of nutrient utilization by farm animals, an assessment of nutritive value of feeds. Recent developments in nutritional manipulation are discussed.

ANSC 451 Dairy and Beef Production Management.
(3) (Winter) (Prerequisite: ANSC 250 - Principles of Animal Science, or permission of instructor) (Restrictions: Not open to students having taken ANSC 450 or ANSC 452. Restricted to U2 or higher.) Overview of the Canadian Dairy and Beef industries with emphasis on products, environment, management systems, reproductive technologies, health, genetic improvement, automation, information recording and use of housing facilities and equipment. Field trips to dairy and beef farms as well as processing units included for illustration and application of concepts.

ANSC 455 Special Topics: Animal Science.
(3) (Fall or Winter) Topics that are not otherwise available in formal courses. Investigation of a particular topic will be carried out under the supervision of a staff member who has expertise in the area of study chosen by the student.

ANSC 457 Special Topics 2.
(3) (Fall or Winter) Special topics in animal science.

ANSC 458 Swine and Poultry Production.
(3) (Fall) (Prerequisite: ANSC 250 - Principles of Animal Science, or permission of instructor.) (Restrictions: Not open to students having taken ANSC 454 or ANSC 456. Restricted to U2 or higher.) Application and integration of biological principles of genetics, physiology, anatomy, nutrition, and health of poultry and swine production systems in Canada. Major factors and practices affecting productivity at the different stages of swine and poultry production. Field trips to farms and related enterprises.

ANSC 490 Project.
(3) (Fall or Winter) A project to be completed under the supervision of a staff member of the Department of Animal Science. An agreement between student and the involved staff member must be reached prior to registration.

ANSC 495 Seminar 1.
(1) (Restriction: Not open to students who have taken ANSC 495D1/D2 or ANSC 495N1/N2.) Preparation, presentation and discussion of critical reviews.

ANSC 496 Seminar 2.
(1) (Restriction: Not open to students who have taken ANSC 495D1/D2 or ANSC 495N1/N2.) Preparation, presentation and discussion of critical reviews.

ANSC 504 Population Genetics.
(3) (Fall) (3 lectures) Considerations of the basic principles of Mendelian genetics dealing with the genetic properties of populations and extension to the simultaneous segregation of genes at many loci, polygenic inheritance and an introduction to quantitative genetics, including mechanisms of transmission, segregation, linkages between genes and the effect of natural and artificial selection.

ANSC 506 Advanced Animal Biotechnology.
(3) (Fall) (Prerequisites: AEBI 202 or LSCI 202 and ANSC 400.) New concepts and applications of animal biotechnology in agriculture, biomedicine, environmental preservation.

ANSC 508 Tools in Animal Biotechnology.
(3) (Fall) (Restriction: Permission of instructor.) Essential laboratory techniques in animal biotechnology: extraction of nucleic acids, PCR technology, gel electrophoresis, construction of gene expression vectors, transformation of bacterial and mammalian cells and monitoring gene expression using reporter genes.
### ANSC 530 Experimental Techniques in Nutrition.

(3) (Fall) (1 lecture, 1 lab) (Restriction: Not open to students who have taken ANSC 630.) Design and conduction of animal studies, selection of experimental animals, chemical and biological assays, statistical analysis, interpretation of data and preparation of technical reports.

**ANSC 551 Carbohydrate and Lipid Metabolism.**

(3) (Winter) (3 lectures) Comparative aspects of nutrition and metabolism of carbohydrate and lipid from the cellular level through the multi-organ of the whole organism. Main topics will include biothermodynamics, calorimetry, cellular metabolism and functions of carbohydrate and lipid, digestion, absorption and utilization of dietary carbohydrate and lipid.

**ANSC 552 Protein Metabolism and Nutrition.**

(3) (Fall) (3 lectures) Comparative aspects of nutrition and metabolism of amino acids and proteins from the cellular level on through the multisystem operation of the whole organism. Main topics include cellular metabolism and functions of amino acids and proteins, digestion, absorption and utilization of dietary protein. Comparison between farm animals and humans.

**ANSC 560 Biology of Lactation.**

(3) (Winter) (Restriction: Not open to students who have taken ANSC 460.) An interdisciplinary approach to the study of mammary development, the onset of lactation and its cessation, common mammalian species in mammmary development from embryological, pre- and post-pubertal and pre- and post-partum aspects. Lactation at the cellular and biochemical levels.

**ANSC 565 Applied Information Systems.**

(3) (Winter) (3 lectures and one 2-hour lab) Introduction to concepts of an Information System and subsequent application to various scenarios in agriculture. Industry analysis in terms of users, goals, available data/information, communication, delivery structure, decision making, feedback, exploitation of technology and possible improvements using the Internet. Individual case studies and familiarisation with cutting-edge computer applications.

### BINF-Bioinformatics

Offered by: Parasitology, Plant Science

**BINF 301 Introduction to Bioinformatics.**

(3) (Prerequisite(s): LSCI 202 or LSCI 204, and ANSC 326) (Restriction: Not open to students who have taken BTEC 551.) Introduces analysis of DNA, RNA and protein sequences using computer software. Emphasis on implementation of molecular evolution theory for algorithms to make predictions of sequence function and infer the evolutionary history of sequences. Assessing analysis reliability and methods to improve efficiency of computer algorithms and their implications are discussed.

**BINF 511 Bioinformatics for Genomics.**

(3) (Prerequisite: Understanding of cell and molecular biology (equivalent to a cell or molecular biology course) or permission from instructor.) Bioinformatics methods and reasoning in relation to genomics, proteomics and metabolomics strategies with an emphasis on functional genomics data. The course will cover introduction to UNIX, Perl programming, data processing and integration, file parsing, relational database design and implementation, angled towards solutions relevant for genomics.

### BREE-Bioresource Engineering

Offered by: Bioresource Engineering

**BREE 103 Linear Algebra.**

(3) (3 lectures and 1 conference) (Restriction: Not open to students who have taken Math 133 or CEGEP objective 00Q or equivalent) (Prerequisite: AEMA 100 or equivalent course in functions/precalculus) Systems of linear equations, matrices, inverses, determinants, geometric vectors in three dimensions, dot and cross product, lines and planes; introduction to vector spaces, linear (in)dependence, bases. Introduction to computer-based mathematical tools.

**BREE 187 Freshman Seminar 1.**

(0.5) (Restrictions: Open to Freshman intending to enrol in B.Eng. Bioresources Engineering Major.) (Not open to students who have taken ABEN 187.) Members of the Faculty and/or Student Services will present seminars on resources available to help students develop the requisite skills to facilitate their transition into university life.

**BREE 188 Freshman Seminar 2.**

(0.5) (Restrictions: Open to Freshman intending to enrol in B.Eng. Bioresources Engineering Major. Not open to students who have taken ABEN 188.) Departmental seminar series.

**BREE 205 Engineering Design 1.**

(3) (Restriction: Not open to students who have taken ABEN 205.) Role of the bioresource engineer in society; introduction to engineering analysis and design; kinds of engineering; role and duties of the engineer in the design, construction, and operation of bio-based facilities, industries and the environment. Regulation of the engineering profession; law and liability; engineering ethics; occupational health and safety.

**BREE 210 Mechanical Analysis & Design.**

(3) (3 lectures and 2 hours lab or problems) (Restriction: Not open to students who have taken ABEN 210.) Non-concurrent force systems; analysis of simple trusses and multiframe frames; friction, shearing forces and bending moments in beams and frames; centres of gravity; solution of problems by energy methods.

**BREE 214 Geometrics.**

(3) (2 lectures and one 3-hour lab) (Restriction: Not open to students who have taken ABEN 214.) The engineer's level and the theodolite are used to perform benchmark circuits, profile levelling, topographic maps and straight line extensions. A total station, computer programs and use of GPS are introduced.

**BREE 216 Bioresource Engineering Materials.**

(3) (2 lectures and one 2-hour lab) Introduction to the composition and mechanical constitution of materials used in bioresource engineering, including metals, plastics, concrete, wood, composite, plant and food materials. Crystal structure, alloys, phase diagrams, stresses and strains, elasticity, plasticity, yield, fracture, ductility, heat treatments, cold work, corrosion, composite materials, concrete chemistry, polymers.

**BREE 217 Hydrology and Water Resources.**

(3) (3 lectures, one 2-hour lab) (Restriction: Not open to students who have taken ABEN 217.) Measurements and analysis of components of the water cycle, Precipitation, evaporation, infiltration and groundwater. Analysis of hydrologic data. Hydrograph theory. Hydrologic estimations for design of water control projects; flood control and reservoir routing. Integrated watershed management and water conservation. Water management systems for environmental protection.

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- Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
- Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
BREE 252 Computing for Engineers.
(3) (3 lectures and one 2-hour lab) (Restriction: Not open to students who have taken ABEN 252.) A user-level computer programming course. Fundamentals of how electronic computers and computer systems work, a disciplined general approach to the solution of engineering problems, and the implementation of these solutions using structured programming methods in a current computational environment.

BREE 301 Biothermodynamics.
(3) (3 lectures and one 2-hour lab) (Restriction: Not open to students who have taken ABEN 301.) Classical thermodynamic analysis of pure and complexes systems. The course covers the first and second laws of thermodynamics. It deals with basic concepts of thermodynamics and thermochromy in biological systems.

BREE 305 Fluid Mechanics.
(3) (3 lectures and one 2-hour lab or problems) (Prerequisites: BREE 210, AEMA 202) (Restriction: Not open to students who have taken ABEN 305.) Properties of fluids; fluid statics; principles of flow of incompressible and compressible fluids; dimensional analysis boundary layers; conduit and open channel systems; simple applications to turbo machinery.

BREE 312 Electric Circuits and Machines.
(3) (3 lectures and one 2-hour lab or problems) (Prerequisite: AEMA 305 (formerly AEMA 205).) (Restriction: Not open to students who have taken ABEN 312.) General circuit laws and d.c. circuits; electromagnetic circuits; inductance and capacitance, nature and forced response of circuits; analysis of single phase and three phase networks; transformers, AC and DC motors/generators.

BREE 314 Agri-Food Buildings.
(3) (3 lectures and 2-hour lab) (Restriction: Not open to students who have taken ABEN 314.) Analysis and design of structures to house animals and plants and to process and store animal and plant products. Introduction to environmental control systems and animal waste management.

BREE 315 Design of Machines.
(3) (3 lectures, 2 hours problems) (Prerequisite: BREE 341 (formerly ABEN 341)) (Restriction: Not open to students who have taken ABEN 315.) Design of shafting, bearings, gear, belt and chain drives, clutches, brakes, vibrations, fasteners, welded joints, frames. Principles and practices of Engineering Drawing will be adhered to in laboratory submissions.

BREE 319 Engineering Mathematics.
(3) (3 lectures, 2-hour lab, conference) (Prerequisite: AEMA 305 or equivalent and BREE 252) (Restriction: Not open to students who have taken ABEN 319.) Advanced topics in engineering mathematics, including special functions, orthogonal functions and Fourier series, boundary value problems in various coordinate systems, integral transforms, partial differential equations and introduction to complex variable theory. The use of computer-based mathematical tools will be an integral part of the course.

BREE 322 Organic Waste Management.
(2) (2 lectures and one 2-hour lab) (Restriction: Not open to students who have taken ABEN 322.) An introduction to engineering aspects of handling, storage and treatment of all biological and food industry wastes. Design criteria will be elaborated and related to characteristics of wastes. Physical, chemical and biological treatment systems.

BREE 324 Elements of Food Engineering.
(3) (3 lectures) (Pre/Co-requisite: FDSC 330) (Restriction: Not open to students who have taken B.Eng (Bioresource) program) (Restriction: Not open to students who have taken ABEN 324.) A course in basic food engineering for non-engineering students, covering heat transfer, mass and energy balances, food process unit operations, material transport/steam/refrigeration systems.

BREE 325 Food Process Engineering.
(3) (3 lectures and one 3-hour lab) (Restriction: Not open to students who have taken ABEN 325.) Heat and mass transfer, enthalpy and mass balances, sterilizing, freezing, fluid flow, pipes, steam, refrigeration, pumps and valves.

BREE 327 Bio-Environmental Engineering.
(3) (Restrictions: U2 students and above. Not open to students who have taken ABEN 327.) (Prerequisite: BREE 210) (formerly ABEN 210) (Restriction: Not open to students who have taken ABEN 341.) Stress, strain, resilience, elastic and plastic properties of materials; bending moment and shear force diagrams; bending and shear stress; deflections; simple, fixed and continuous beams, torsion and helical springs, reinforced concrete beams; columns, bending and direct stress; general case of plane stress; Mohr's circle.

BREE 412 Machinery Systems Engineering.
(3) (3 lectures and one 3-hour lab) (Restriction: Not open to students who have taken ABEN 412.) Study and analysis of machines for tillage, harvesting, crop processing and handling. Field tests, load studies, design requirements; design of machines and components for agricultural applications.

BREE 416 Engineering for Land Development.
(3) (3 lectures and one 2-hour lab or design problems) (Prerequisite: BREE 217) (formerly ABEN 341) (Restriction: Not open to students who have taken ABEN 416.) The engineering aspects of soil and water conservation, irrigation, water conveyance structures and canals, use of geosynthetics for soil protection, seepage and uplift. Students will produce an integrated development project.

BREE 418 Soil Mechanics and Foundations.
(3) (3 lectures and one 3-hour lab) (Prerequisite: BREE 341) (formerly ABEN 341) (Restriction: Not open to students who have taken ABEN 418.) The exploration of subsoils, strength theories, granular and cohesive soils, foundation design, settlement calculation, consolidation, slope stability, Atterberg limits, triaxial testing, direct shear testing, compaction, soil freezing, frost heaving.

BREE 419 Structural Design.
(3) (3 lectures and one 3-hour lab or design problems) (Prerequisite: BREE 341) (formerly ABEN 341)) (Restriction: Not open to students who have taken ABEN 419.) Structural Design in steel and timber; application of complete design procedures to working stress design; plastic design for ultimate loading.

BREE 423 Biological Material Properties.
(3) Relationships between composition, structure and properties of biological materials. Measurement methods and use of mechanical, thermal, electromagnetic, chemical and functional properties in the design of new applications and product development.

BREE 430 GIS for Natural Resource Management.
(3) (Prerequisite(s): At least one environmental science course and one ecology course or permission of instructor) (Restrictions: U2 students and above. Not open to students who have taken GEOG 201, GEOG 306 or GEOG 307 or NRSC 430. Limited to 32 students.) Applications of Geographic Information Systems (GIS) and spatial analysis techniques to the presentation and analysis of ecological information, including sources and capture of spatial data; characterizing, transforming, displaying spatial data; and spatial analysis to solve resource management problems.

BREE 481 Undergraduate Seminar 1.
(0.5) (Restrictions: Not open to students who have taken ABEN 491D/N or ABEN 481.) Attendance and participation in departmental seminars.

BREE 482 Undergraduate Seminar 2.
(0.5) (Restrictions: Not open to students who have taken ABEN 492D/N or ABEN 482.) Attendance and participation in departmental seminars.

BREE 483 Undergraduate Seminar 3.
(0.5) (Restrictions: Not open to students who have taken ABEN 493D/N or ABEN 483.) Attendance and participation in departmental seminars.
BREE 484 Undergraduate Seminar 4.
(0.5) (Restriction: Not open to students who have taken ABEN 484.) Attendance and participation in departmental seminars.

BREE 485 Undergraduate Seminar 5.
(1) (Restriction: Not open to students who have taken ABEN 485.) Attendance and participation in departmental seminars, and a small written project report.

BREE 486 Undergraduate Seminar 6.
(1) (Restriction: Not open to students who have taken ABEN 486.) Attendance and participation in departmental seminars, and a small written project report.

BREE 490 Engineering Design 2.
(3) (1 lecture) (Prerequisites: CHEE 315 or MECH 346, BREE 205.) (Restriction: Not open to students who have taken ABEN 490.) The student is expected to develop a professional design project proposal with due considerations to executive summary, synthesis, methodology, milestones, budget, etc.

BREE 495 Engineering Design 3.
(3) (1 lecture) (Prerequisite: BREE 490 (formerly ABEN 490)) (Restriction: Not open to students who have taken ABEN 490.) The student is expected to implement, physically or virtually, the project proposed in the Design 1 course. The student is expected to present project outcome, in both written and oral forms and learn to be critical about their own work and those of others.

BREE 497 Bioresource Engineering Project.
(3) (Prerequisites: BREE 205 and BREE 327) Independent study for design and experimental work on a bioresource engineering topic chosen in consultation between the student and departmental staff.

BREE 501 Simulation and Modelling.
(3) (Prerequisite: BREE 252; AEMA 305; or permission of instructor.) (Restrictions: U3 students and above. Not open to students who have taken ABEN 612 or ABEN 501.) Mathematical and computational modelling and simulation: linear, nonlinear, and chaotic; deterministic and stochastic; static and dynamic; steady and unsteady state. Verification, validation, sensitivity analysis. Examples emphasize bioengineering applications, e.g. machine design, population dynamics, food processing, biological control, farm management, ecological system design.

BREE 502 Drainage/Irrigation Engineering.
(3) (Prerequisite: BREE 217 (formerly ABEN 217)) (Restrictions: U3 students and above. Not open to students who have taken ABEN 611 or ABEN 502.) Benefits and importance of drainage; types of drainage systems; design and construction of main, surface and subsurface drainage systems; drainage materials. Crop water requirements; evapotranspiration models; design and layout of surface, sprinkler and drip irrigation systems; pipe hydraulics; pumps.

BREE 504 Instrumentation and Control.
(3) (3 lectures and one 2-hour lab) (Prerequisite (Undergraduate): BREE 312 (formerly ABEN 312) or ECSE 281) (Restriction: Not open to students who have taken ABEN 504.) Principles and operation of instrument systems used for measurement and control in agricultural processes and research.

BREE 506 Advances in Drainage Management.

BREE 509 Hydrologic Systems and Modelling.
(3) (3 hour lectures) (Restriction: Not open to students who have taken ABEN 509.) Use of deterministic and stochastic models to analyze components of the hydrologic cycle on agricultural and forested watersheds, floods frequency analysis, hydrograph analysis, infiltration, runoff, overland flow, flood routing, erosion and sediment transport. Effects of land-use changes and farm and recreational water management systems on the hydrologic regime.

BREE 510 Watershed Systems Engineering.
(3) (3-2-4) (Restrictions: U3 students or above.) (Note: Case studies and a project.) A holistic examination and application of methods in water resources engineering and management at the watershed level with a specific focus on integrated water resources management (IWRM). Topics will include: integration, participatory management, water resources assessment, modeling, planning, adaptive management, transboundary management, and transition management.

BREE 512 Soil Cutting and Tillage.
(3) (2 lectures and one 2-hour lab) (Prerequisite (Undergraduate): BREE 341 (formerly ABEN 341)) (Restriction: Not open to students who have taken ABEN 512.) Soil mechanics applied to cutting, tillage and drain installation tools. Soil cutting forces for two and three dimensional implements. Soil loosening, inversion, sorting and manipulation. Selection of traction machines to match soil cutting and tillage requirements. Depth and grade control systems. Analysis of drainage machines, wheel trenchers, chain trenchers and trenchless plows.

BREE 515 Soil Hydrologic Modelling.
(3) (3 lectures and one 3-hour lab) (Restriction: Not open to students who have taken ABEN 515.) A review of computer simulation models for designing subsurface drainage systems. Use of CAD systems for designing and drafting drainage plans.

BREE 518 Bio-Treatment of Wastes.
(3) (One 3 hour lecture) (Restriction: Not open to students who have taken ABEN 518.) Special topics concerning control of pollution agents from the agricultural industry: odour control, agricultural waste treatment including biological digestion, flocculants, land disposal and sedimentation, pesticide transport.

BREE 519 Advanced Food Engineering.
(3) (3 lectures and one 2-hour lab) (Prerequisites: BREE 325 (formerly ABEN 325) and MECH 426; or permission of instructor) (Restriction: Not open to students who have taken ABEN 519.) Advanced topics in food engineering. Concepts of mathematical modelling and research methodologies in food engineering. Topics include heat and mass transfer in food systems, packaging and distribution of food products, thermal and non-thermal processing, rheology and kinetics of food transformations.

BREE 520 Food, Fibre and Fuel Elements.
(3) (Prerequisite: BREE 327) Analysis and design incorporating the four elements required by organisms and biomass for food, fibre and fuel production (air, earth, energy, and water). Special emphasis will be placed on the demands and requirements of engineering systems to control these elements and allow optimal growth in semi-controlled and completely controlled environments.

BREE 525 Climate Control for Buildings.
(3) (3 lectures and one 3-hour lab) (Prerequisite: BREE 301 (formerly ABEN 301)) (Restriction: U3 students or above. Not open to students who have taken ABEN 525.) The analyses of heat and water vapour transfer through the structure of buildings are used to design heating, ventilation and refrigeration systems. Heat conduction and convection as well as

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radiation are included in the analysis of heat transfer. Ventilation systems are designed for livestock shelters, produce storages and greenhouses.

**BREE 530 Fermentation Engineering.**
(3) (3 lectures and one 3-hour lab) (Prerequisite Undergraduate): BREE 325 (formerly ABEN 325) or equivalent) (Graduate courses available to senior undergraduates with permission of the instructor) (Restriction: Not open to students who have taken ABEN 530.) Advanced topics in food and fermentation engineering are covered, including brewing, bioreactor design and control and microbial kinetics.

**BREE 531 Post-Harvest Drying.**
(3) (Restrictions: U3 students or above. Not open to students who have taken ABEN 621 or ABEN 531.) Heat and moisture transfer with respect to drying of agricultural commodities; techniques of enhancement of heat and mass transfer; drying efficiency and scale-up problems.

**BREE 532 Post-Harvest Storage.**
(3) (Restrictions: Not open to students who have taken ABEN 622 or ABEN 532.) Active, semi-passive and passive storage systems; environmental control systems; post-harvest physiology and pathology; quality assessment and control methodology; economic aspects of long-term storage.

**BREE 533 Water Quality Management.**
(3) (Restriction: Not open to students who have taken BREE 625 (formerly ABEN 625.) Management of water quality for sustainability. Cause of soil degradation, surface and groundwater contamination by agricultural chemicals and toxic pollutants. Screening and mechanistic models. Human health and safety concerns. Water table management. Soil and water conservation principles will be examined with an emphasis on methods of prediction and best management practices.

**BTEC-Biotechnology**
Offered by: Plant Science, Parasitology

**BTEC 306 Experiments in Biotechnology.**
(3) (Fall) (Prerequisite(s): AEBI 202 or LSCI 202 and CELL 204 or LSCI 204 or permission of instructor.) (Restriction(s): Not open to students who have taken AEBI 306.) Practical laboratory-based research experience. Techniques in cellular and molecular biology, designing experiments and developing skills in interpretation and communication of experimental results.

**BTEC 501 Bioinformatics.**
(3) (3 lectures per week) (Prerequisites: LSCI 202 or LSCI 204 and ANSC 326. Permission of instructor.) (Restriction: Not open to students who have taken BINF 301.) This course introduces the application of computer software for analysis of biological sequence information. An emphasis is placed on the biological theory behind analytical techniques, the algorithms used and methods of developing a statistical framework for various types of analysis.

**BTEC 502 Biotechnology Ethics and Society.**
(3) (Restriction: U3 and over.) Examination of particular social and ethical challenges posed by modern biotechnology such as benefit sharing, informed consent in the research setting, access to medical care worldwide, environmental safety and biodiversity and the ethical challenges posed by patenting life.

**BTEC 535 Functional Genomics in Model Organisms.**
(3) (Prerequisite: 300-level course in genetics, molecular biology, biochemistry or permission of instructor.) (Restriction: Limited to 30 students.) An overview of strategies used to understand the function of genes, especially those identified through genome sequencing and bioinformatics. Use of model organisms that have proved particularly valuable for this purpose.

**BTEC 555 Structural Bioinformatics.**
(3) (Prerequisite: 300-level undergraduate course in molecular biology, biochemistry or permission of instructor.) Fundamentals of protein structure and the application of tools for structure determination, how protein structure allows us to understand the complex biological functions, and how knowledge of protein structure can contribute to drug discovery.

**CELL-Genetics**
Offered by: Plant Science

**CELL 500 Techniques Plant Molecular Genetics.**
(3) Plant biotechnology, recombinant DNA techniques, transgenic plant generation (genetically modified plants) as well as gene and gene product analysis.

**ENTO-Entomology**
Offered by: Natural Resource Sciences

**ENTO 330 Insect Biology.**
(3) (Fall) (2 lectures and one 2-hour lab) (Restriction: Not open to students who have taken NRSC 330) Insect structure and function, development and specialization; ecology and behavior; diversity, evolution and classification of insect orders and common families; pest management.

**ENTO 340 Field Entomology.**
(3) (Summer) A field course and project about arthropod taxonomy, field methods and experimental design in entomology. Includes natural history observation, and experimental approaches to arthropod population and community ecology.

**ENTO 350 Insect Biology and Control.**
(3) (Winter) (3 hours lecture) (Prerequisite: BIOL 205 or permission of instructor) (Restriction: Not open to students who have taken or are taking ENTO 330 or BIOL 350) (Note: Offered on the downtown campus. This course is also offered as BIOL 350 in the Fall term.) Introduction to insect structure, physiology, biochemistry, development, systematics, evolution, ecology and control. Stress on interrelationships and integrated pest control.

**ENTO 352 Biocontrol of Pest Insects.**
(3) (Winter) (Restriction: Not open to students who have previously taken ENTO 452) (3 lectures) Modern concepts of integrated control techniques and principles of insect pest management, with emphasis on biological control (use of predators, parasites and pathogens against pest insects), population monitoring, and manipulation of environmental, behavioral and physiological factors in the pest's way of life. Physical, cultural, and genetic controls and an introduction to the use of non-toxic biochemical controls (attractants, repellents, pheromones, antimetabolites).

**ENTO 440 Insect Diversity.**
(3) (Fall) (1 lecture, 1 lab and project) (Prerequisite: ENTO 330 or permission of instructor) (Restriction: Not open to students who have taken NRSC 330) Insect diversity patterns in space and time.

**ENTO 515 Parasitoid Behavioural Ecology.**
(3) (Winter) (Prerequisite: ENTO 330 (formerly NRSC 330) or equivalent) (Restriction: Not open to students who have taken NRSC 515) The origin and diversity of parasitoid species will be presented. Aspects of behavioural ecology that pertain to host selection, optimal allocation of progeny and sex and host-parasitoid interactions are examined. The importance of these processes is discussed in a biological control perspective.

**ENTO 535 Aquatic Entomology.**
(3) (Fall) Diversity, biology, ecology and recognition of the main groups of aquatic insects.

**ENTO 550 Veterinary and Medical Entomology.**
(3) (Winter) (Prerequisite: Permission of instructor) (Restriction: Not open to students who have taken NRSC 550) Environmental aspects of veterinary and medical entomology. An advanced course dealing with the biology and ecology of insects and aracnids as aetiological agents and vectors of disease, and
their control. Integrated approaches to problem solving.

**ENVB-Environmental Biology**
Offered by: Natural Resource Sciences

**ENVB 210 The Biophysical Environment.**
(3) (Fall) (Restriction: Not open to students who have taken SOIL 210) With reference to the ecosystems in the St Lawrence lowlands, the principles and processes governing climate-landform-water-soil-vegetation systems and their interactions will be examined in lecture and laboratory. Emphasis on the natural environment as an integrated system.

**ENVB 222 St. Lawrence Ecosystems.**
(3) (Fall) Integrative field course about the biological diversity and ecology of terrestrial and aquatic ecosystems within St Lawrence lowlands and adjacent realms. Natural history and systematics of regional flora and fauna and interactions between organisms and their physical environment. Fundamentals of ecosystem and landscape ecology.

**ENVB 301 Meteorology.**
(3) (Fall) (Restriction: Not open to students who have taken WILD 205) The physical processes underlying weather. Topics include: the atmosphere - its properties (structure and motion), and thermodynamics (stability, heat and moisture); clouds and precipitation; air masses and fronts; mid-latitude weather systems and severe weather.

**ENVB 305 Population & Community Ecology.**
(3) (Winter) (Restriction: Not open to students who have taken WILD 205) Interactions between organisms and their environment; historical and current perspectives in applied and theoretical population and community ecology. Principles of population dynamics, feedback loops, and population regulation. Development and structure of communities; competition, predation and food web dynamics. Biodiversity science in theory and practice.

**ENVB 313 Phylogeny and Biogeography.**
(3) (Fall) (Prerequisite: AEBI 212 or WILD 212) (Restriction: Not open to students who have taken WILD 313) Phylogeny reconstruction; principles of systematics; predictive power of phylogenetic trees; theory and principles of biogeography; historical biogeography of plants and animals; role of abiotic and biotic factors in shaping distributions.

**ENVB 315 Science of Inland Waters.**
(3) (Fall) (Restriction: Not open to students who have taken NRSC 315, NRSC 419, or ENVB 210) Nature and history of limnology; divisions of inland waters; properties of fresh water; habitats; zones; nutrient cycles; biota; adaptations; seasonal variation; distributions; pollution; succession and evolution of fresh water environments. Includes field excursions.

**ENVB 410 Ecosystem Ecology.**
(3) (Fall) (Prerequisite(s): ENVB 222, ENVB 305) (Restriction: Not open to students who have taken WOOD 410) Biotic and abiotic processes that control the flows of energy, nutrients and water through ecosystems; emergent system properties; approaches to analyzing complex systems. Labs include collection and multivariate analysis of field data.

**ENVB 415 Ecosystem Management.**
(3) (Fall) (Prerequisites: BREE 327 and WILD 205 or ENVB 305) Through the examination of cases studies presented in a modular format, students will be exposed to a variety of ecosystem processes. Choice of components, interactions and type of management to achieve desired endpoints will be discussed.

**ENVB 430 GIS for Natural Resource Management.**
(3) (Fall) (Prerequisites: At least one environmental science course and one ecology course or permission of instructor) (Restrictions: U2 students and above. Not open to students who have taken GEOG 201, 239 or 307 or BREE/ABEN 430 or NRSC 307. Limited to 32 students.) Applications of Geographic Information Systems (GIS) and spatial analysis techniques to the presentation and analysis of ecological information, including sources and capture of spatial data; characterizing, transforming, displaying spatial data; and spatial analysis to solve resource management problems.

**ENVB 437 Assessing Environmental Impact.**
(3) (Winter) (2 lectures) (Restrictions: U2 students and above. Not open to students who have taken WILD 437 or NRSC 437.) Theories and procedures of assessing environmental impact. An examination of the environmental impact of existing programs and projects to examine their accuracy in predicting consequences and attenuating undesirable effects.

**ENVB 497 Research Project 1.**
(2) (Fall and Winter) (Restriction: Not open to students who have taken NRSC 496 D,N or NRSC 497 D,N or NRSC 498.) Independent research project in consultation with a faculty supervisor. Selection of a research problem, formulation of hypotheses and objectives, research design and a comprehensive review of the pertinent literature.

**ENVB 498 Research Project 2.**
(3) (Fall and Winter) (Prerequisite: ENVB 497) (Restriction: Not open to students who have taken NRSC 496 D,N or NRSC 497 D,N or NRSC 498.) Continuation of the independent research project begun in NRSC 497. Data collection and analysis, testing of hypotheses, discussion of results.

**ENVB 506 Quantitative Methods in Ecology.**
(3) (Winter) (Prerequisites: AEMA 310 and ENVB 305; or permission of instructor) (Restriction: Not open to students who have taken AEMA 306 or AEMA 406.) The process of formulating models of natural systems and confronting them with data, along with the necessary statistical computing skills. Emphasis on hands-on experience with current approaches for building, fitting, and comparing models.

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**FAES-Faculty of Agric & Envir Sci**
Offered by: Agricultural & Envir Sci.-Dean

**FAES 200 Internship 1.**
(0) (Students will be graded using the Pass/Fail system. Students must be registered as a full-time student prior to and after enrollment in this course. A mandatory report must be submitted at the end of the Internship to the Faculty of Agricultural and Environmental Sciences Internship Office.)

**FAES 300 Internship 2.**
(0) (Students will be graded using the Pass/Fail system. Students must be registered as a full-time student prior to and after enrollment in this course. A mandatory report must be submitted at the end of the Internship to the Faculty of Agricultural and Environmental Sciences Internship Office.)

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FDSC-Food Science
Offered by: Food Science & Agr-Chemistry

FDSC 200 Introduction to Food Science.
(3) (Fall) (3 lectures) This course enables one to gain an appreciation of the scope of food science as a discipline. Topics include introductions to chemistry, processing, packaging, analysis, microbiology, product development, sensory evaluation and quality control as they relate to food science.

FDSC 213 Analytical Chemistry 1.
(3) (Fall) (3 lectures and one 3-hour lab) Theoretical aspects of wet chemical techniques including gravimetric and volumetric analyses, redoxometry, and separation techniques.

FDSC 230 Organic Chemistry.
(4) (Fall or Winter) (3 lectures and one 3-hour lab) Atomic and molecular structure, modern concepts of bonding, overview of functional groups, conformational analysis, stereochemistry, mechanisms and reactions of aliphatic compounds.

FDSC 233 Physical Chemistry.
(3) (Winter) (3 lectures) Introduction to kinetic theory, thermodynamics, properties of liquids and solids, chemical equilibrium and the law of mass action, phase rule, properties of solutions, chemical kinetics.

FDSC 251 Food Chemistry 1.
(3) (Winter) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 211 or LSCI 211) A study of the chemistry and functionality of the major components comprising food systems, such as water, proteins, carbohydrates and lipids. The relationship of these components to food stability will be studied in terms of degradative reactions and processing.

FDSC 300 Principles of Food Analysis 1.
(3) (Fall) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 251 or permission of instructor.) (Corequisite: FDSC 251 or permission of instructor.) The fundamentals of food analysis are presented with the emphasis on the major components of foods. Topics include: food components, sampling, method selection, official methods, proximate analysis, moisture, protein, fat, ash, fiber, carbohydrates, vitamins and nutraceutical compounds.

FDSC 305 Food Chemistry 2.
(3) (Fall) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 251) A study of the chemistry and functionality of the minor components comprising food systems, such as enzymes, anthocyanins, carotenoids, additives, vitamins and essential oils. The relationship of these components to food stability in terms of degradative reactions and processing.

FDSC 310 Post Harvest Fruit and Vegetable Technology.
(3) (Fall) (3 lectures and one 3-hour lab) The post harvest chemistry and physiology of horticultural crops as they affect quality and marketability, handling methods pre and post harvest, principles and practices in cooling, storage, transportation and packaging.

FDSC 315 Separation Techniques in Food Analysis 1.
(3) (Winter) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 300 or permission of instructor.) A detailed treatment on the principal chromatographic and electrophoretic techniques that are associated with the analysis of carbohydrate, lipid, protein constituents of food.

FDSC 319 Food Commodities.
(3) (Winter) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 251 or permission of instructor) The relationship between the chemistry of food constituents present in common commodities, such as milk, meat, eggs, cereals, oilseeds etc. and the common processing technologies associated with their transformation into stable food products.

FDSC 330 Food Processing.
(3) (Winter) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 251) The principles and practices of food processing with an emphasis on canning, freezing, and dehydration. A survey of the newer methods of food preservation such as irradiation, reverse osmosis etc.

FDSC 334 Analysis of Food Toxins and Toxicants.
(3) (Winter) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 213 or permission of instructor.) Toxins and toxicant residues in food including heavy metals, persistent organic pollutants (POPS) and microbial toxins are explored from an analytical perspective; new methods and strategies of analysis are emphasized.

FDSC 400 Food Packaging.
(3) (Winter) (3 lectures and one 3-hour lab) (Prerequisite: FDSC 305) An integrated approach to the materials used for the packaging of food products, considering the physical, chemical and functional characteristics of such materials and their utility, relative to the chemistry of the food system they are designed to enclose and preserve.

FDSC 405 Food Product Development.
(3) (Fall) (3 lectures and one 3-hour lab) (Pre-/Co-requisite: FDSC 305 or permission of instructor) Fundamental principles of food product development from an innovative concept to the marketplace. Emphasis will be on the application of basic knowledge of food chemistry, food technology and related disciplines in developing new products or improving the existing ones.

FDSC 410 Flavour Chemistry.
(3) (Winter) (3 lectures) (Prerequisite: FDSC 305) The chemistry of the flavour constituents of foods, synthesis, modification, extraction and use.

FDSC 425 Principles of Quality Assurance.
(3) (Winter) (3 lectures) (Prerequisite: AEMA 310) The principles and practices required for the development, maintenance and monitoring of systems for food quality and food safety. The concepts and practices of Hazard Analysis Critical Control Point; ISO 9000; Total Quality Management; Statistical Sampling Plans, Statistical Process Control; Tools of Quality; Government Regulations.

FDSC 442 Food Microbiology.
(3) (Fall) (Prerequisite: MIRC 230 or LSCI 230 or permission of instructor.) (Restriction: Not open to students who have completed MIRC 442.) Topics in Food Microbiology including an overview of the natural flora and microbiological spoilage of food products, methods of control and shelf-life extension, methods of detection and control food-borne pathogens and the use of suitable microorganisms in the production of a variety of food products.

FDSC 480 Industrial Stage/Food.
(12) (Note: Open to students who have a minimum of 60 credits in the Double Major Food Science/Nutritional Sciences or permission of department.) Stage with an approved host organization in the food industry.

FDSC 490 Research Project 1.
(3) (Fall or Winter) A course designed to give final year undergraduate students research experience.

FDSC 491 Research Project 2.
(3) (Fall or Winter) (Pre-/Co-requisite: FDSC 490) (Restriction: Registration by Department permission only.) A laboratory research project.

FDSC 495D1 (1.5), FDSC 495D2 (1.5) Food Science Seminar.
(Fall) (2 lectures) (Students must register for both FDSC 495D1 and FDSC 495D2.) (No credit will be given for this course unless both FDSC 495D1 and FDSC 495D2 are successfully completed in consecutive terms) Two 20-minute presentations (1 per term) on an assigned or selected topic. The purpose is to research a subject and present to a peer audience the essence of the subject investigated. Development of presentation and communication skills at a professional level is stressed and rapport with the industry will be established through guest speakers.

FDSC 495N1 (1.5), FDSC 495N2 (1.5) Food Science Seminar.
(Winter) (Students must also register for FDSC 495N2) (No credit will be given for this course unless both FDSC 495N1 and FDSC 495N2 are successfully completed in a twelve month period) Two 20-minute presentations (1 per term) on an assigned or selected topic. The purpose is to research a subject and present to a peer audience the essence of the subject investigated. Development of presentation and communication skills at a professional level is stressed and rapport with the
industry will be established through guest speakers.

FDSC 497 Professional Seminar: Food. (1.5) (Fall or Winter) (Note: Open to students who have completed a minimum of 75 credits in the dual degree/concurrent program in Food Science/Nutritional Science or permission of Department.) A capstone course which requires a student to research a topic relevant to an industrial aspect of Food Science, prepare a report and communicate that information to a peer audience in a succinct and professional manner.

**FDSC 515 Enzyme Thermodynamics/Kinetics.** (3) (Winter) (3 lectures) (Prerequisites: FDSC 211 or LSCI 211 and FDSC 233 or permission of instructor) (Course offered in even years. Check with Graduate Program Supervisor.) Selected advanced topics on the biophysical and kinetic aspects of enzymatic reactions, particularly the fundamentals and applications of laws of biothermodynamics, biochemical equilibrium, electrochemistry and biochemical kinetics as related to the enzymatic reactions.

**FDSC 519 Advanced Food Processing.** (3) (Winter) (3 lectures) (Prerequisite: FDSC 330) (Course offered in even years. Check with Graduate Program Supervisor.) Advanced technologies associated with food processing studied in more detail. Topics include food irradiation, reverse osmosis, super critical fluid extraction and extrusion.

**FDSC 520 Biophysical Chemistry of Food.** (3) (Fall) (3 lectures) (Prerequisite: FDSC 233) (Course offered in odd years. Check with Graduate Program Supervisor.) This course will cover recent advances in the application of spectroscopic techniques, including infrared, Raman, near-infrared, circular dichroism, and fluorescence spectroscopy, to the study of biomolecules of relevance to food. Particular emphasis will be placed on the molecular basis of structure-function and structure-functional relationships.

**FDSC 530 Advanced Analytical Chemistry.** (3) (Winter) (3 lectures) (Prerequisite: FDSC 213) (Course offered in odd years. Check with Graduate Program Supervisor.) Selected instrumental methodologies including advances in automated chromatography, wide band NMR, chemical sensors, and the application of other spectroscopic techniques to the analysis of food constituents.

**FDSC 535 Food Biotechnology.** (3) (Fall) (3 lectures) (Prerequisite: MICR 230 or LSCI 230) (Course offered in odd years.) Developments in biotechnology as it relates to food production and processing concerning traditional food fermentations as well as novel food biotechnology enzymes, ingredients, genetic engineering, plant tissue culture and developments for microbiological and food analysis.

**FDSC 536 Food Traceability.** (3) (Winter) (3 lectures) (Prerequisite: FDSC 425 or permission of instructor.) (Course offered in odd years.) Concepts and processes associated with the identification, tracking and tracing food forward and backward through the food continuum.

**FDSC 537 Nutraceutical Chemistry.** (3) (Fall) (3 lectures) (Prerequisites: FDSC 211 or LSCI 211, FDSC 230 and FDSC 233 or permission of instructor) (Course offered in even years.) The origin, classification, mechanism of action and chemical properties of potential and established nutraceutical compounds and their applications in functional foods.

FDSC 538 Food Science in Perspective. (3) (Fall) (Restriction: Not open to students with an undergraduate degree in Food Science or currently majoring in Food Science. Open to U3 students and above.) Food industry, food properties, nutritive aspects, quality factors, and key preservation processes, with self-study linking these elements directly to specific commodities and product groups, their characteristics, chemistry and distinct manufacturing processes.

**FDSC 540 Sensory Evaluation of Foods.** (3) (Fall) (3 lectures) (Prerequisite: FDSC 305 or NUTR 346, or permission of the instructor) Principles and procedures for sensory evaluation of food products, applications of sensory tests, their strengths and weaknesses, factors affecting their responses, data analysis and interpretation of results. Analysis of sensory data in relation to the instrumental analyses will also be emphasized.

**FDSC 545 Advances in Food Microbiology.** (3) (Winter) (3 lectures) (Prerequisite: MICR 230 or LSCI 230, or permission of instructor) An advanced level food microbiology course providing a perspective on advanced topics in food microbiology (microbial biofilms, antimicrobial resistance, bacterial endospores) and describing the fundamental principles of food irradiation, enzymes in food microbiology (microbiological, biochemical, immunological, genetics methods).

### LSCI-Life Sciences

**Offered by:** Parasitology, Plant Science, Natural Resource Sciences


**LSCI 204 Genetics.** (3) (Restriction: Not open to students who have taken CELL 204.) (Pre- or Co-requisite: FDSC 211 or LSCI 211) The course integrates classical, molecular and population genetics of animals, plants, bacteria and viruses. The aim is to understand the flow of genetic information within a cell, within families and in populations. Emphasis will be placed on problem solving based learning. The laboratory exercises will emphasize the interpretation of genetic experimental data.

**LSCI 211 Biochemistry 1.** (3) (Restriction(s): Not open to students who have taken FDSC 211) (Co-requisite: FDSC 230) Biochemistry of carbohydrates, lipids, proteins, nucleic acids; enzymes and coenzymes. Introduction to intermediary metabolism.

**LSCI 230 Introductory Microbiology.** (3) (Winter) (Restriction: Not open to students who have taken MICR 230.) The occurrence and importance of microorganisms (especially bacteria) in the biosphere. Principles governing growth, death and metabolic activities of microorganisms. An introduction to the microbiology of soil, water, plants, food, man and animals.

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- Denotes courses taught only in alternate years.
- Professional Practice (Stage) in Dietetics involving special prerequisites.
- Indicates that departmental approval/permission must be obtained by a student prior to registration.
- Denotes courses not available as Education electives.
- Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
- Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
- Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
NRSC-Natural Resource Sciences

Offered by: Natural Resource Sciences

NRSC 221 Environment and Health.
(3) (Restriction: Not open to students who are taking or have taken GEOG 221.) (Note: This course is also offered as GEOG 221. Students enrolled in main campus programs register as GEOG 221; students enrolled in Macdonald campus programs register as NRSC 221.) Introduction to physical and social environments as factors contributing to the production of human health, with emphasis on the physical properties of the atmospheric environment as they interact with diverse human populations in urban settings.

NRSC 333 Pollution and Bioremediation.
(3) (Fall) (3 lectures) (Restriction: Not open to students who have taken WILD 333) The environmental contaminants which cause pollution; sources, amounts and transport of pollutants in water, air and soil; waste management.

NRSC 340 Global Perspectives on Food.
(3) (Winter) (3 lectures) (Prerequisite: A 200-level course in food science, food resources or dietetics, or permission of instructor.) Issues of community and global change in relation to environment and the production of food. Contrasts between developed and developing countries will highlight impacts of colonialism, political structures, and cultural systems related to gender, class and ethnicity.

NRSC 370 Special Topics 01.
(1) (Fall and Winter) (Restriction: Departmental approval required.) Students will pursue topics that are not otherwise available in formal courses. An individualized course of studies will be followed under the supervision of a member of staff qualified in the appropriate discipline or area.

NRSC 371 Special Topics 02.
(1) (Fall and Winter) (Restriction: Departmental approval required.) Students will pursue topics that are not otherwise available in formal courses. An individualized course of studies will be followed under the supervision of a member of staff qualified in the appropriate discipline or area.

NRSC 372 Special Topics 03.
(2) (Fall and Winter) (Restriction: Departmental approval required.) Students will pursue topics that are not otherwise available in formal courses. An individualized course of studies will be followed under the supervision of a member of staff qualified in the appropriate discipline or area.

NRSC 373 Special Topics 04.
(2) (Fall and Winter) (Restriction: Departmental approval required.) Students will pursue topics that are not otherwise available in formal courses. An individualized course of studies will be followed under the supervision of a member of staff qualified in the appropriate discipline or area.

NRSC 374 Special Topics 05.
(3) (Fall and Winter) (Restriction: Departmental approval required.) Students will pursue topics that are not otherwise available in formal courses. An individualized course of studies will be followed under the supervision of a member of staff qualified in the appropriate discipline or area.

NRSC 375 Special Topics 06.
(3) (Fall and Winter) (Restriction: Departmental approval required.) Students will pursue topics that are not otherwise available in formal courses. An individualized course of studies will be followed under the supervision of a member of staff qualified in the appropriate discipline or area.

NRSC 405 Natural History of East Africa.
(3) (Corequisite(s): ANTH/GEOG 451, NRSC/BIOL 452) (Restriction: Not open to students who have taken NRSC 300 or GEOG 300. Not open to students taking REDM 405.) Integrated study of African landforms, geologic history, climate, environments, biota, water resources and human influences, fostering a thorough understanding of the East African landscape and its inhabitants. Lectures, discussions on selected topics, use of museum resources and field studies will develop powers of observation, identification and enquiry.
NRSC 451 Research in Ecology and Development In Africa. (3) (Winter) (Not open to students who have taken or are taking BIOL 451. Open to U2 or later students in the African Field Semester (AFSS).) (Corequisites: ANTH or GEOG 451 Society & Development in Africa) Development of observation and independent inquiry skills through: 1) participation in short-term project modules in collaboration with existing researchers; 2) participation in interdisciplinary team research on topics selected to allow comparative analysis of field sites; 3) active and systematic observation, documentation, and integration of field experience in ecology and development issues.

NRSC 510 Agricultural Micrometeorology. (3) (Fall) (3 lectures) (Restriction: Not open to students who have taken AGEC 201, or BIOL 214, or have taken foreign language to beyond placement communities and the atmosphere. The physical processes governing the transfer of heat, mass and momentum as they relate to research and production in agricultural and environmental systems. Experimental techniques for measuring fluxes of heat, water-vapour, CO2 and natural and man-made pollutants.

NRSC 512 Water: Ethics, Law and Policy. (3) (Fall) The various legal expressions of the relationship between humanity and water such as those grounded in markets, basic rights, First Nations traditions, utilitarianism and cost/benefit analysis. Public, private and international law, and intergovernmental institutions relevant to the protection and management of water resources.

NRSC 514 Freshwater Ecosystems. (3) (Fall) Origin, diversity, structure, function and evolution of freshwater ecosystems; fauna, flora and biotic communities of freshwater habitats; indicator organisms; biotic indices; human impact on freshwater ecosystems.

NRSC 540 Socio-Cultural Issues in Water. (3) (Winter) (Prerequisite: A 300- or 400-level course in water or permission of instructor.) (3-hour seminar) Discussion of current debates and problems related to water, especially in developing countries. Topics include: gender relations and health in the context of cultural and economic systems, and the impacts of new technologies, market structures and population growth.

NUTR-Nutrition and Dietetics

Offered by: Dietetics & Human Nutrition

NUTR 200 Contemporary Nutrition. (3) (Restriction: Not open for credit to students with a biology or chemistry course in their program, or to students registered in the School of Dietetics and Human Nutrition, or to students who take NUTR 207.) Provides students without a biology/chemistry background with the fundamental tools to critically assess nutrition related information, to evaluate their own diets, and to implement healthy changes. Emphasis is on current issues and maximizing health and disease prevention at different stages of the lifecycle.

NUTR 207 Nutrition and Health. (3) (Fall) (3 lectures) (Corequisites: AEBI20 or CEGEP Objective 00XU or FDSC230 or CEGEP Objective 00XV) (Restriction: Not open to students who take NUTR 200 or EDKP 292) (Restriction: Science students in physical science and psychology programs who wish to take this course should see the Arts and Science Student Affairs Office for permission to register.) Provides students who have a basic biology/chemistry background with the fundamental information on how macronutrients, vitamins and minerals are metabolized in the body, followed by application to evaluate current issues of maximizing health and disease prevention at different stages of the lifecycle.

NUTR 208 Professional Practice Stage 1A. (1) (Winter) (Prerequisites: All required courses in Term 1 of the Dietetics Major: AGEC 242, LSCI 211, NUTR 207, NUTR 214) (Corequisites: All Required courses in Term 2 of the Dietetics Major) (Restriction: Dietetics Major or Special Students (professional credentialing)) Introduction to the dietetics profession; principles and policies in food and nutrition essential to entry-level dietetics experiences; practice in dietary interviewing, problem solving and report writing related to Level 1 Professional Practice placements.

NUTR 209 Professional Practice Stage 1B. (3) (Prerequisites: All U1 required courses of the Dietetics major: AGEC 242, ANSC 234, LSCI 211, LSCI 230, NUTR 207, NUTR 214, NUTR 217 and NUTR 322. All U0 math and science entrance requirements must be complete prior to commencement of NUTR 209.) (The course NUTR 209 includes a $150 fee for the Level I stage manual and name tags for students’ identification at their placement sites. The fee is refundable until the end of the add/drop period as long as the materials that have been distributed are returned intact.) Directed, supervised experiences in nutrition services and food service operations management; integration into the professional team.

NUTR 214 Food Fundamentals. (4) (Fall) (One 3-hour lecture and one 4-hour lab) (Prerequisite: FDSC 230 or corequisite with instructor’s permission.) (Corequisite: FDSC 211 or LSCI 211) (This course includes a fee of $350 for a culinary tool kit, chef coat, hairnet, food ingredients, supplies and laboratory manual. The fee is refundable as long as the kit and supplies have not been opened, used or scratched and the manual is intact. Students who drop this course during the course add/drop period may return the kit (if already received) to their department, who will then advise the Student Accounts Office to reverse the charges for the fee once they have inspected the materials and found them to be in acceptable condition.) The structure and composition of foods, sensory evaluation and the scientific principles underlying physical and chemical changes that occur during food preparation. Displays, demonstrations and “hands-on” experience to relate culinary, nutritional and food safety theory to practical applications.

NUTR 217 Application: Food Fundamentals. (4) (Winter) (One 3-hour lecture and one 4-hour lab) (Prerequisite: NUTR 214) (The course NUTR 217 includes a $200.00 fee for the laboratory supplies including food ingredients and required prepared text for the course. The fee is refundable until the end of the add/drop period.) A more intensive study of food and complex food mixtures, including their chemical and physical properties. Learning how to control the changes that take place during the preparation of food to obtain palatable, nutritious and safe food. An introduction to culturally determined food habits. Laboratory emphasis on acquiring new knowledge and application to basic food preparation and cooking principles.

NUTR 301 Psychology. (3) (Fall) (2 lectures and 1 conference) A study of the general characteristics of physical, social, emotional and intellectual development, the psychology of learning, and the growth and development of personality.

NUTR 307 Human Nutrition. (3) (Fall) (Corequisites: ANSC 234 or BIOC 311, and PHGY 202 or PHGY 210 or ANSC 323 or NUTR 207) (3 lecture hours and 1 tutorial/conference hour.) Nutrition in human health and disease from the molecular to the organismal level. Nutrigenomics, the impact of genotype on nutrient

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metabolism, health and disease risk, and the role of nutrients in metabolic regulation.

‡ NUTR 310 Professional Practice Stage 2A.
(1) (Winter) (One 2-hour conference/week) (Prerequisite: NUTR 209) Human food intake assessment and evaluation will be practiced including modules on dietary interviewing, nutrition education teaching plans and documentation for the medical record. Practical aspects of health and food service administration will be addressed.

‡ NUTR 311 Professional Practice Stage 2B.
(5) (Prerequisites: ANSC 330 or NUTR 307, and all U2 required courses: AEMA 310, AGEC 343, ANSC 323, ANSC 424, NUTR 310, NUTR 337, NUTR 344, NUTR 345, NUTR 346.) (The course NUTR 311 includes a $125 fee for the Level II manual. The fee is refundable until the end of the add/drop period as long as the manual is intact.) Two interrelated modules of directed experience in normal and clinical nutrition and foodservice management, in health care settings and the private sector.

NUTR 322 Applied Sciences Communication.
(2) (Fall) (2 lectures, 1 lab) (Prerequisite: Completion of 15 credits in a B.Sc. program) The principles and techniques of communicating applied sciences to individuals and groups in both the professional and public milieu. Effective public speaking and group interaction techniques. Communication materials selection, development, use, and evaluation. Writing for the media. Balancing risk and reason in communicating scientific findings.

NUTR 337 Nutrition Through Life.
(3) (Winter) (3 lectures, 1 conference) (Prerequisites: ANSC 234 or BIOL 311, plus ANSC 330 or NUTR 307) Emphasis on applied quantitative aspects of human nutrition. Nutrient utilization, evaluation and requirements, as related to dietary standards.

NUTR 344 Clinical Nutrition 1.
(4) (Winter) (Two 2-hour lectures) (Prerequisites: ANSC 234 or BIOL 311, and ANSC 323, plus ANSC 330 or NUTR 307.) (Corequisites: NUTR 337 and ANSC 424.) Clinical nutrition assessment and dietary modification of pathological conditions including hypertension, lipid disorders and cardiovascular disease, obesity, diverticulosis, cancer, COPD, anorexia nervosa and bulimia.

NUTR 345 Food Service Systems Management.
(3) (Fall) (Prerequisite: NUTR 209.) An introductory course applying the principles of organizational management within the healthcare foodservice industry. Emphasis on understanding standards of quality control, customer relations and sanitation. Budget preparation, scheduling and cost control as well as menu preparation, recipe standardization and costing.

NUTR 346 Quantity Food Production.
(2) (Winter) (Prerequisite: NUTR 345) (NUTR 346 includes a fee of $300.00 for the Hazard Analysis Critical Control Points (HACCP) online course, the Canadian Food Safety Certification Advanced.fst book and examination and for a laboratory manual and supplies. The fee is refundable if the course is dropped before the add/drop deadline.) Quantity food planning, costing, and evaluation. Laboratory experience with quantity food production following principles of food sanitation and safety, food quality and cost-evaluation.

NUTR 403 Nutrition in Society.
(3) (Fall) (3 hour conference) (Prerequisite: NUTR 337) Sociocultural and economic influences on food choice and behaviour; health promotion and disease prevention through nutrition, particularly in high risk populations; the interaction of changing environment, food availability and quality as they affect health.

‡ NUTR 408 Professional Practice Stage 3A.
(1) (Prerequisite: NUTR 311) (Corequisite: NUTR 409) Orientation and educational topics linking theory to practice for field placements in the clinical setting.

‡ NUTR 409 Professional Practice Stage 3B.
(8) (Winter: 10 weeks) (Prerequisites: NUTR 311, NUTR 403, NUTR 446, NUTR 450, NUTR 545.) (The course NUTR 409 includes a $125 fee for the Level III manual. The fee is refundable until the end of the add/drop period as long as the manual is intact.) Four interrelated modules of directed experience in clinical nutrition, foodservice management, normal nutrition education and community nutrition, in health care settings and the private sector.

NUTR 420 Toxicology and Health Risks.
(3) (Fall) (3 lectures) (Prerequisites: FDSC 211 or LSCI 211, BIOL 201 or BIOL 212) (Restriction: This course is not open to students who have taken NUTR 361) Basic principles of toxicology, health effects of exposure to environmental contaminants such as heavy metals, pesticides and radionuclides and ingestion of food toxicants such as food additives and preservatives; natural toxins in plants and marine foods, human health, ecosystem health, safety evaluation, risk assessment, and current Canadian regulations.

NUTR 430 Directed Studies: Dietetics and Nutrition 1.
(3) (Fall and Winter) An individualized course of study in dietetics/human nutrition under the supervision of a staff member with expertise on a topic not otherwise available in a formal course. A written agreement between student and staff member must be made before registration and filed with the Program Coordinator.

NUTR 431 Directed Studies: Dietetics and Nutrition 2.
(3) (Fall or Winter) An individualized course of study in dietetics/human nutrition under the supervision of a staff member with expertise on a topic not otherwise available in a formal course. A written agreement between student and staff member must be made before registration and filed with the Program Coordinator.

NUTR 431D1 (1.5), NUTR 431D2 (1.5) Directed Studies: Dietetics and Nutrition 2. (Students must register for both NUTR 431D1 and NUTR 431D2.) (No credit will be given for this course unless both NUTR 431D1 and NUTR 431D2 are successfully completed in consecutive terms) (NUTR 431D1 and NUTR 431D2 together are equivalent to NUTR 431) An individualized course of study in dietetics/human nutrition under the supervision of a staff member with expertise on a topic not otherwise available in a formal course. A written agreement between student and staff member must be made before registration and filed with the Program Coordinator.

NUTR 432 Directed Studies: Dietetics and Nutrition 3.
(3) (Fall and Winter) An individualized course of study in dietetics/human nutrition under the supervision of a staff member with expertise on a topic not otherwise available in a formal course. A written agreement between student and staff member must be made before registration and filed with the Program Coordinator.

NUTR 433 Directed Studies: Dietetics and Nutrition 4.
(5) (Fall or Winter or Summer) (Limited enrolment) (Prerequisite: registration in NUTR 409 or equivalent.) (Restriction: students in the Dietetics Major or documentation of requirement for professional registration) An individualized course of study in dietetics and human nutrition not available through other courses in the School. Emphasis will be placed on application of foods and nutrition knowledge, analytic and synthesis skills, and time management. A written agreement between student and instructor must be made before registration. A “C” grade is required to pass the course.

NUTR 436 Nutritional Assessment.
(2) (Winter) (Prerequisite: NUTR 337) (2 lectures) An intense 4-week course focused on resolving clinically based case studies. The objectives: to develop skills in clinical problem solving, learn principles and methods for assessing the nutritional status of patients and to become skilled at interpreting clinical data relevant to assessing nutritional status and prognosis of hospitalized patients.
NUTR 438 Interviewing and Counselling.
(2) (Winter) (Two 2-hour conferences) (Prerequisites: NUTR 344 and NUTR 445) Theories of behaviour change, Techniques and skills as applicable to the dietitian's role as communicator, interviewer, counsellor, educator, motivator and nutrition behaviour change specialist.

NUTR 446 Applied Human Resources.
(3) (Fall) (3 lectures, 1 conference) (Prerequisite: AGER 242) The management of people at work. Employee development and the leadership role. The nature of collective bargaining, the role of unions and management.

NUTR 450 Research Methods: Human Nutrition.
(3) (Fall) (2 lectures, 3 hours research, 4 hours other) (Prerequisites: AEMA 310 or BIOL 373, and NUTR 307 or ANSC 330) Introduction to methods of clinical, community, international, and laboratory-based nutrition research. Lectures, readings and assignments will cover basic research concepts. Students undertake a computer directed literature search and analysis.

NUTR 480 Industrial Stage/Nutrition.
(12) (Note: Open to students who have a minimum of 60 credits in the Double Major Food Science/Nutritional Sciences or permission of department.) Stage with an approved host organization in the nutrition product industry.

(1.5) (Note: Open to students who have completed a minimum of 75 credits in the dual degree/concurrent program in Food Science/Nutritional Science or permission of Department.) A capstone course which requires a student to research a topic relevant to an industrial aspect of Nutritional Science, prepare a report and communicate that information to a peer audience in a succinct and professional manner.

NUTR 500 Independent Study 1.
(3) (An approved course outline must be on file in the School's office prior to registration.) (Prerequisite: Permission of instructor and Director of the School) An individualized course to allow students to undertake projects in library, laboratory, or field study.

NUTR 501 Nutrition in Developing Countries.
(3) (Fall) (2 lectures and one seminar) (Prerequisite: For undergraduate students, consent of instructor required) This course will cover the major nutritional problems in developing countries. The focus will be on nutrition and health and emphasize young children and other vulnerable groups. The role of diet and disease for each major nutritional problem will be discussed.

NUTR 502 Independent Study 2.
(3) (An approved course outline must be on file in the School's office prior to registration.) (Prerequisite: Permission of instructor and Director of the School) An individualized course to allow students to undertake projects in library, laboratory, or field study.

NUTR 503 Bioenergetics and the Lifespan.
(3) (Fall) (Prerequisites: Undergraduate Basic Biochemistry (3 credits), Undergraduate Mammalian Physiology (EDKP 331 or PHGY 202 or PHGY 210 or ANSC 323), Undergraduate Introductory Nutrition (EDKP 392 or NUTR 207 or NUTR 307).) Multidisciplinary approach that integrates principles of bioenergetics with nutrition through the lifespan.

\[ \text{NUTR 510 Professional Practice - Stage 4.} \]
(14) (Fall: 16 weeks) (Prerequisite: NUTR 409) (This course includes a $125 fee for the Level IV stage manual. The fee is refundable until the end of the add/drop period as long as the manual is intact.) Interrelated modules of directed experience in clinical nutrition, foodservice management, nutrition education and community nutrition, in health care setting and in the private sector.

NUTR 511 Nutrition and Behaviour.
(3) (2 lectures and one seminar) (Prerequisite: NUTR 445 for undergraduate students or consent of instructor) Discussion of knowledge in the area of nutrition and behaviour through lectures and critical review of recent literature; to discuss the theories and controversies associated with relevant topics; to understand the limitations of our knowledge. Topics such as diet and brain biochemistry, stress, feeding behaviour and affective disorders will be included.

NUTR 512 Herbs, Foods and Phytochemicals.
(3) (Fall) (3 lectures and a project) (Prerequisites (Undergraduate): FDSC 211 or LSCI 211 or BIOL 201 or BIOG 212) An overview of the use of herbal medicines and food phytochemicals and the benefits and risks of their consumption. The physiological basis for activity and the assessment of toxicity will be presented. Current practices relating to the regulation, commercialization and promotion of herbs and phytochemicals will be considered.

NUTR 513 Credentialing in Dietetics.
(3) (Winter) (Prerequisite: Permission of instructor.) (Restriction: Not open to students who have taken NUTR 611.) Theoretical and practical integration of knowledge and skills required during graduate professional practice. Includes clinical assessment and nutritional monitoring techniques, analysis of interviewing and counseling situations, and application of management information systems and quality assurance procedures.

NUTR 545 Clinical Nutrition 2.
(5) (Fall) (Two 2.5-hour lectures) (Prerequisites: NUTR 344 and ANSC 424) (Restriction: Not open to students who have taken NUTR 445) (This course includes a fee of $300 for the purchase of professional diet manuals available only to ASPEN (American Society of Parenteral and Enteral Nutrition), ADA (American Dietetics Association), DC (Dietitians of Canada) or OPQD (Ordre Professionnel des Dietetistes du Quebec) members certified to instruct qualifying students in Dietetics. These manuals are not available to the general public, hence the School is responsible for procuring these necessary materials. The fee is refundable until the end of the add/drop period as long as the manuals are intact.) Clinical nutrition intervention for gastrointestinal and liver disease, hypermetabolic states, diabetes mellitus, renal disease and inborn errors of metabolism, enteral/parenteral nutrition management.

NUTR 551 Analysis of Nutrition Data.
(3) (Fall) (Prerequisite: NUTR 337) (Corequisite: NUTR 450) (This course includes a fee of $100 for a course and lab manual prepared by the instructor of the course. The fee is refundable until the end of the add/drop period as long as the manual is intact.) An applied course in analysis and interpretation of nutrition data sets. Introduction to specialized dietary and anthropometric computer programs. Written and oral presentation of results.

PARA-Parasitology
Offered by: Parasitology

PARA 410 Environment and Infection.
(3) (2 lectures per week) (Prerequisite: BIOL 111 or AEBI 120 or equivalent) Infectious pathogens of humans and animals and their impact on the global environment are considered. The central tenet is that infectious pathogens are environmental risk factors. The course considers their impact on the human condition and juxtaposes the impact of control and treatment measures and environmental change.

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\† Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
\& Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
\% Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
PLNT-Plant Science
Offered by: Plant Science

PLNT 203 Economic Botany.
(3) Study of plants which are useful or harmful to humans, their origins and history, botanical relationships, chemical constituents which make them economically important; their roles in prehistoric and modern cultures and civilization and possible impact in the future.

PLNT 221 Introduction to Fungi.
(1) Field and laboratory survey of local representatives of the major groups of fungi, including edible and poisonous mushrooms. The role of each group in agricultural and environmental conservation. Economic importance of fungi in medicine and biotechnology will be introduced.

PLNT 300 Cropping Systems.
(3) Application of plant science and soil science to production of agronomic and horticultural crops. Use and sustainability of fertilization, weed control, crop rotation, tillage, drainage and irrigation practices.

PLNT 302 Forage Crops and Pastures.
(3) Forage crops with emphasis on establishment, growth, maintenance, harvesting, and preservation; value as livestock feed in terms of nutritional composition and role in environmental conservation.

PLNT 304 Biology of Fungi.
(3) This course describes the various groups of fungi and explores in depth their biology and physiology, their ecological niches and the role in various ecosystems and their benefits and uses in industry and biotechnology.

PLNT 305 Plant Pathology.
(3) The theory and concepts of plant pathology, including the disease cycle, infection, symptoms, resistance, epidemiology and control. The biology and taxonomy of pathogens will be studied, including fungi, bacteria, viruses and nematodes. Techniques of inoculation, isolation of pathogens from diseased plants, disease diagnosis and pathogen identification will be demonstrated.

PLNT 307 Agroecology of Vegetables and Fruits.
(3) Application of ecological concepts and principles to the design and management of selected vegetable and fruit agroecosystems. Includes selection of varieties and management from seedling to harvest to storage.

PLNT 310 Plant Propagation.
(3) Principles and practical aspects of plant propagation are examined. The course consists of two parts. The first third deals with sexual propagation; the production, processing storage certification and analysis of seeds. The remaining two-thirds deals with vegetative propagation; cutting, budding, grafting, layering, and tissue culture.

PLNT 312 Urban Horticulture.
(3) Selection, use and care of plants in urban environments for the benefit of urban populations: landscape design, turf and green space management, green roofs, design and management of community gardens.

PLNT 315 Herbs and Medicinal Plants.
(3) Biochemistry and ecophysiology of the active ingredients in medicinal plants. Links between cultivation practices and plant compounds. The effect of propagation and environmental factors on active compounds are examined using greenhouse experiments, followed by quantification of active ingredients by analytical techniques and analysis of bioactivity.

PLNT 322 Greenhouse Management.
(3) Greenhouse design and operation, including environmental regulation, fertilization and pest management. Focus will be on the production of major floricultural and vegetable crops.

PLNT 331 Grains and Biofuel Crops.
(3) A study of economically important crops produced for dietary or biofuel utilization; historical development, botany, distribution and adaptation, cultural practices and factors that affect the utilization of crop products. Laboratories emphasize morphological study of major energy producing field crop species.

PLNT 353 Plant Structure and Function.
(3) General anatomy and physiology of vascular plants with emphasis on the cells, tissues, organs, chemical components of plants and the physiological processes associated with their function.

PLNT 358 Flowering Plant Diversity.
(3) A survey of local representatives of the major groups of flowering plants and their roles in prehistoric and modern cultures and civilization and possible impact in the future. Principles of classification and identification of flowering plants and ferns, with emphasis on 35 major families of flowering plants and the habitats in which they grow.

PLNT 424 Cellular Regulation.
(3) The cellular mechanisms used by prokaryotes and eukaryotes to regulate biosynthetic pathways. Topics covered range from control of gene transcription to the regulation of enzyme activity to the role of signal transduction pathways in the control of metabolic flux through cellular pathways.

PLNT 426 Plant Ecophysiology.
(3) Investigates of the complex interactions between plants and their environment, focusing on the mechanisms underlying plant physiological processes. Plasticity of plants to their ecological environment; topics include phytoremediation, plant stress responses, plant-symbiosis and plant-plant interactions.

PLNT 430 Plant Disease Epidemiology.
(3) (Prerequisites: FDSC 211 or LSCI 211, AEBI 210 or LSCI 202 or permission of the instructor.) An overview of the cellular mechanisms used by prokaryotes and eukaryotes to regulate biosynthetic pathways. Topics covered range from control of gene transcription to the regulation of enzyme activity to the role of signal transduction pathways in the control of metabolic flux through cellular pathways.
PLNT 434 Weed Biology and Control.  
(3) (3 lectures and one 3-hour lab) (Prerequisite: PLNT 201 or AE 210) A study of the biology of undesirable vegetation as related to the principles of prevention and physical, biological, managerial and chemical control. Emphasis on the environmental impact of the different methods of weed control.

PLNT 435 Plant Breeding.  
(3) (Winter) (Prerequisites: PLNT 201 or AE 210 and CELL 204 or LSCI 204) (Restriction: Not open to students who have taken PLNT 535.) Principles and practices of plant breeding, including reproduction of crop plants; plant hybridization; sources of genetic variation; selection methods used for self- and cross-pollinated crops and for clonally reproduced crops; breeding for diseases and pest resistance; applications of biotechnology in plant breeding.

PLNT 450 Special Topics: Plant Science.  
(2) A course of independent study by the student with the guidance of a professor of recognized competence in the area of the chosen topic.

PLNT 451 Special Topics: Plant Science 2.  
(3) A course of independent study by the student with the guidance of a professor of recognized competence in the area of the chosen topic.

PLNT 458 Flowering Plant Systematics.  
(3) (1 lecture plus one 3-hour lab plus required summer plant collection) (Prerequisite: PLNT 358 or BIOL 358 or permission of instructor) Principles and methods of phylogenetic analysis of flowering plants with emphasis on new classification systems resulting from analysis of DNA sequence data. Laboratory sessions will focus on 40 temperate and tropical families not covered in PLNT 358 as well as on identification techniques for difficult plant families.

PLNT 460 Plant Ecology.  
(3) (3 lectures and one 3-hour lab) (Prerequisite: AEMA 310 or permission of instructor.) Theory and practice of plant ecology with an emphasis on the interaction between patterns and ecological processes and the dynamics, conservation and management of plant populations and communities over a range of temporal and spatial scales.

PLNT 489 Project Planning and Proposal.  
(1) (Restriction: Not open to students who have taken PLNT 490D1/D2 or PLNT 490N1/N2) Preparation of a literature review and research plan for the project course (PLNT 490).

PLNT 490 Research Project.  
(2) (Prerequisite: PLNT 489) (Restriction: Not open to students who have taken PLNT 490D1/D2 or PLNT 490N1/N2) Directed study on approved research project requiring both oral and written presentation.

PLNT 495 Seminar 1.  
(1) (Restriction: Not open to students registered in, or who have taken PLNT 495D1/D2 or PLNT 495N1/N2) .

PLNT 496 Seminar 2.  
(1).

PLNT 520 Plant-Microbe Interactions.  
(3) (Restriction: Not open to students who have taken PLNT 660.)

PLNT 525 Advanced Micropropagation.  
(3) (One 3-hour lecture) A detailed study of the principles and techniques of plant micropropagation. Includes lectures, laboratories, discussion sessions and visits to local laboratories. Evaluation is based on contribution to discussions, laboratory reports and an individualized project.

SOIL Science

SOIL 300 Geosystems.  
(3) (Winter) (Restrictions: Not open to students who have taken SOIL 200. Restricted to U2 students and above.) Interactions between Earth’s various geologic systems and how these interactions lead to mineral and rock formation. Geomorphic processes and how various landforms are created by the interactions at the Earth’s surface between the various geologic systems.

SOIL 315 Soil Fertility and Fertilizer Use.  
(3) (Fall) (3 lectures and one lab) (Prerequisites: SOIL 210 or ENVB 210 or permission of instructor) Plant nutrients in the soil, influence of soil properties on nutrient absorption and plant growth, use of organic and inorganic fertilizers.

(3) (Fall) (3 lectures and one 3-hour lab) (Prerequisite: A previous course in soil science, geography, geology or permission of instructor.) Soil processes responsible for soil formation will be studied and the impact of changes to the physical and chemical environment will be discussed.

SOIL 331 Soil Physics.  
(3) (Winter) (3 lectures and one 3-hour lab) Soil structure; fluxes of water, heat, gases and solids in soils; physical properties and plant growth; applications to soil dynamics.

SOIL 335 Soil Ecology and Management.  
(3) (Winter) (3 lectures and one 3-hour lab) (Prerequisites: SOIL 210 or ENVB 210) The physical and chemical environment of soil organisms; survey of soil microflora and fauna; processes and optimal agronomic systems of management consistent with the goals of ecological agriculture.

SOIL 342 Organic Soil Fertilization.  
(3) (Fall) (web-based course (offered online)) The need for using organic fertilizers to produce certified organic crops. Soil biology, nutrient requirements and fertilizers for organic crops; nutrient management and the soil foodweb; biocontrol opportunities.

SOIL 445 Agroenvironmental Fertilizer Use.  
(3) (Winter) (Prerequisite: SOIL 315.) A sustainable, agroenvironmental approach to nutrient management planning at the farm scale, consistent with guidelines and laws governing fertilizer use in Quebec and other jurisdictions.

SOIL 510 Environmental Soil Chemistry.  
(3) (Winter) (Prerequisite: A course in Soil Science or permission of instructor) (Restriction: Not open to students who have taken SOIL 410.) Soil chemical principles are presented in a series of problem sets covering basic concepts as well as applications to environmental and agricultural situations.

WILD-Resource Development

WILD 307 Natural History of Vertebrates.  
(3) (Fall) (Lectures and modules) (Restriction: Not open to students who have taken ZOOL 307) Review of higher taxonomic groups of vertebrates and prochordates, emphasizing diagnostic characters evolution and distribution.

WILD 311 Ethology.  
(3) (Winter) (2 lectures, one 3-hour lab) (Restriction: Not open to students who have taken ZOOL 311) Invertebrate and vertebrate behaviour; innate behaviour, learning, motivation, agonistic behaviour, rhythms, social organization, mating systems and communication.

Always check at [www.mcgill.ca/study/](http://www.mcgill.ca/study/) for the most up-to-date information on whether a course is offered.

Denotes courses taught only in alternate years.

Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
WOOD 350 Mammalogy.
(3) (Winter) (2 lectures and one 3-hour lab) (Prerequisites: PLNT 200 (formerly AEBI 200) and WILD 307 (formerly ZOOL 307)) This course focuses on the evolution, classification, ecology and behaviour of mammals and relations between humans and mammals. Also structure, systematics and identification of local and world mammals, as well as field methods will be emphasized.

WOOD 375 Issues: Environmental Sciences.
(3) (Winter) (3 lectures) Principles and trends in global ecology as they pertain to agricultural and natural ecosystems and the impact of environmental change on food production.

WOOD 401 Fisheries and Wildlife Management.
(4) (Fall) (3 lectures, one 2-hour lab and one week field laboratory prior to fall term) (Prerequisite: PLNT 358) (Note: A $400 fee is charged to all students registered in WILD 401, Fisheries and Wildlife Management, a course that has two required field trips. This fee is used to support the cost of excursions, accommodations, food and fees associated with visiting research facilities in New Brunswick and New York. The Department of Natural Resource Sciences subsidizes a portion of the cost of this compulsory activity.) Principles of fisheries and wildlife management are considered and current practices of research and management are discussed.

WOOD 415 Conservation Law.
(2) (Fall) (2 lectures) A study of the various federal, provincial and municipal laws affecting wildlife habitat. Topics include: laws to protect wild birds and animals; the regulation of hunting; federal protection of trees and flowers, sanctuaries, reserves, parks; techniques of acquiring and financing desirable land, property owner rights.

WOOD 420 Ornithology.
(3) (Fall and Winter) (3 lectures and occasional field trips) (Prerequisite: WILD 307 (formerly ZOOL 307) or permission of instructor) (This course is scheduled for video-conferencing.) Taxonomic relationships and evolution of birds are outlined. Reproduction, migration and population processes of North American birds are examined.

WOOD 421 Wildlife Conservation.
(3) (Winter) (3 lectures) (Restriction: Not open to students who have taken NRSC 421.) Study of current controversial issues focusing on wildlife conservation. Topics include: animal rights, exotic species, ecotourism, urban wildlife, multi-use of national parks, harvesting of wildlife, biological controls, and endangered species.

WOOD 424 Parasitology.
(3) (Winter) (2 lectures and one 3-hour lab) (Restriction: Not open to students who have taken WILD 424 (formerly ZOOL 424).) Systematics, morphology, biology and ecology of parasitic protozoa, flatworms, roundworms and arthropods with emphasis on economically and medically important species.

WOOD 475 Desert Ecology.
(3) (Winter) (Field course) (Prerequisites: PLNT 460, WILD 307 (formerly ZOOL 307), WILD 420) (Enrolment limited to 20) (A $1,000.00 fee is charged to all students registered in WILD 475 Desert Ecology, a course that is based on site visits in the southwestern US, that include representative areas of the Chihuahuan (Texas), Sonoran (Arizona) and Mojave (California) Deserts. This fee is used to support the cost of transportation once in the USA, entrance fees and the operation of the support vehicle and crew. Students will be responsible for their own airfare and food expenses.) This course deals with adaptations to heat and drought. Representative areas of Coastal Bend, Chihuahuan and Sonoran deserts are visited over a two-week period. In the third week, emphasis is on the high desert and historical and cultural aspects of desert life observed in at the Mesa Verde cliff dwellings. A pre-trip analysis of an area to be visited and field notes are the principal bases of evaluation. Students must bear transportation costs.
Faculty of Arts

AFRI-African Studies
Offered by: Inst for the St of Development

AFRI 200 Introduction to African Studies.
(3) The African experience and current approaches to African studies, through adopting multidisciplinary perspectives on topics that include political conflict, governance and democratization, environment and conservation, economic development, rural life and urbanism, health and illness, gender, social change, popular culture, literature, film, and the arts.

AFRI 401 Swahili Language and Culture.
(3) (Note: Priority to students in the African Studies Program and/or participants of the Canadian Field Studies in Africa program, and to students with a demonstrable need related to internship or research. Approval by African Studies Program Adviser required.) Basic knowledge of the Swahili language and culture with emphasis on handling circumstances that might be encountered in field research: everyday conversation, developing aural and oral skills and mastering basic grammar rules, understanding cultural norms and practices, issues of culture sensitivity and appropriateness.

ANTH-Anthropology
Offered by: Anthropology

ANTH 201 Prehistoric Archaeology.
(3) (Fall) Examination of the origin of cultural behaviour and culture as an adaptive mechanism from the earliest times to the rise of the first civilizations in the Old and New Worlds. The implications of these data concerning the nature of humans and their future development will be considered.

ANTH 202 Comparative Cultures.
(3) (Fall) An introduction to different cultures and societies. Aspects of social life, such as economics, gender, family, kinship, politics and beliefs are explored in diverse settings. Different social systems such as those centered on foraging, farming, and urbanism are illustrated and compared.

ANTH 203 Human Evolution.
(3) (Winter) An examination of evolutionary theory and the fossil and archaeological record for human origins, emphasizing the interaction between physical and cultural evolution. The use of primate behaviour in reconstructing early human behaviour. The origin and meaning of human variation.

ANTH 204 Anthropology of Meaning.
(3) (Winter) Through the analysis of language, symbols and cultural constructions of meaning, this course explores how people in different societies make sense of their world, and the ways in which they organise that knowledge, and how ideologies represent the different interests present in a society.

ANTH 206 Environment and Culture.
(3) (Fall) Introduction to ecological anthropology, focusing on social and cultural adaptations to different environments, human impact on the environment, cultural constructions of the environment, management of common resources, and conflict over the use of resources.

ANTH 207 Ethnography Through Film.
(3) This course will investigate and discuss cultural systems, patterns, and differences, and the ways in which they are observed, visually represented, and communicated by anthropologists using film and video. The visual representation of cultures will be critically evaluated by asking questions about perspective, authenticity, ethnographic authority and ethics.

ANTH 208 Evolutionary Anthropology.
(3) (Winter) The basic elements and mechanisms of evolutionary theory; the place of evolutionary theory in anthropology, including social anthropology, archaeology, physical anthropology and anthropological linguistics. Emphasis on the debates in each sub-discipline in which evolutionary theory has played an important role.

ANTH 209 Anthropology of Religion.
(3) (Fall) Nature and function of religion in culture. Systems of belief; the interpretation of ritual. Religion and symbolism. The relation of religion to social organization. Religious change and social movements.

ANTH 210 Archaeology of Early Cities.
(3) (Winter) An introduction to the archaeology of early cities. Case studies include the cities of "great civilizations" (e.g., Egypt, Indus Valley, Inkan Empire), as well as the urban landscapes of lesser known societies, such as Great Zimbabwe in sub-Saharan Africa.

ANTH 211 Anthropology of Development.
(3) (Winter) Processes of developmental change, as they affect small communities in the Third World and in unindustrialized parts of developed countries. Problems of technological change, political integration, population growth, industrialization, urban growth, social services, infrastructure and economic dependency.

ANTH 214 Violence, Warfare, Culture.
(3) (Fall) Cultural diversity and comparative perspectives on violence and warfare; sociological, political, materialist, psychological, and ideological explanations of conflict. Examines historical and contemporary cases of warfare in state and pre-state societies; 'ethnic', civil, nationalist secessionist and genocidal forms of conflicts; processes of
ANTH 222 Legal Anthropology. (3) (Winter) Exploration of dispute resolutions and means of social cohesion in various societies of the world. Themes: dichotomy between law and custom, local definitions of justice and rights, forms of conflict resolution, access to justice, gender and law, universality of human rights, legal pluralism.

ANTH 227 Medical Anthropology. (3) (Fall) Beliefs and practices concerning sickness and healing are examined in a variety of Western and non-Western settings. Special attention is given to cultural constructions of the body and to theories of disease causation and healing efficacy. Topics include international health, medical pluralism, transcultural psychiatry, and demography.

• ANTH 301 Nomadic Pastoralists. (3) (Fall) (Prerequisite: ANTH 202, or ANTH 205, or ANTH 206, or ANTH 212) Variations in herding systems over a wide range of habitats and involving a variety of species of domestic livestock. Comparative perspectives on the prehistory of pastoral systems, on the ideologies, cultures, and social and economic systems of nomadic pastoralists. Relations with non-pastoralists and the effects of change and development will also be examined.

• ANTH 302 New Horizons in Medical Anthropology. (3) (Winter) (Prerequisite: ANTH 227) (Restriction: Anthropology program students.) Using recent ethnographies as textual material, this course will cover theoretical and methodological developments in medical anthropology since the early 1990’s. Topics include a reconsideration of the relationship between culture and biology, medical pluralism revisited, globalization and health and disease, and social implications of new biomedical technologies.

• ANTH 303 Ethnoarchaeologies of Post-socialism. (3) (Winter) (Prerequisites: ANTH 202 and one other 200-level anthropology course, U2 standing or above, or permission of instructor.) Understanding postsocialism through engagement with ethnography that explores how markets interact with political rule, social forms, and the production of cultural values across different geographies and histories. This course focuses primarily on the former Soviet Union, East Germany, and China.

ANTH 304 Chinese Culture in Ethnography and Film. (3) (Fall) (Prerequisites: ANTH 202 or ANTH 204 or ANTH 209 and another 200-level anthropology course, U2 standing or above, or permission of the instructor.) (Restriction: U2 standing or above.) Uses both ethnography and film to examine 20th century Chinese society and popular culture in the context of the revolution and its aftermath.

• ANTH 305 Arctic Prehistory. (3) (Prerequisite: ANTH 201.) (Restriction: Not open to students who have taken ANTH 319.) Comparative study of prehistoric Arctic hunter-gatherer cultures in Northern Canada, Alaska, Greenland and eastern Siberia. Emphasis will be placed on interpretation of cultural continuity and change in the context of contemporary hunter-gatherer theory.

• ANTH 306 Native Peoples’ History in Canada. (3) (Prerequisites: HIST 202 or HIST 203 or ANTH 202 or ANTH 205 or ANTH 206, or permission of instructor) A survey of the Canadian policies that impinged on native societies from the fur trade to World War II, and the native peoples' responses, looking at their involvement in the fur trade, the emergence of the Métis, types of resistance, economic diversification, development of associations, and cultural distinctiveness.

• ANTH 307 Andean Prehistory. (3) (Fall) (Prerequisites: ANTH 201 and 1 other course in Social/Cultural Anthropology or permission of instructor) (Restriction: Students must be U2 or U3 standing.) Questions related to social inequality, ritual practice, monumental space, and urban landscapes within the context of the Pre-Columbian Ñedes and sections on the Inkas, as well as earlier groups, such as the Nazca, Wari, Moche, Tiwanaku, and Chimú.

• ANTH 308 Political Anthropology 01. (3) (Fall) (Prerequisite: ANTH 202, or ANTH 205, or ANTH 206, or ANTH 212, or permission of instructor) The study of political systems and political processes. Conflict and its resolution. The emphasis of the course will be on local-level politics and non-industrial societies.

• ANTH 309 Prehistory of Northern Europe. (3) (Fall) (Prerequisite: ANTH 201.) Survey of the prehistory of northern Europe from the end of the last glaciation to the early iron age.

ANTH 311 Primate Behaviour and Ecology. (3) (Fall) (Prerequisite: Any 200 level course in a social or biological science.) Critical evaluation of theories concerning primate behaviour with emphasis on the importance of ecological factors in framing behaviour, including mating behaviour, parent care, social structures, communication, as well as various forms of social interaction such as dominance, territoriality and aggressive expression.

ANTH 312 Zoarchaeology. (3) (Fall) (Prerequisites: ANTH 201 and Honours/Major status in Anthropology) A systematic investigation into current methodological and theoretical concerns in archaeological faunal analysis. Topics to be examined include sampling and quantification, butchery, seasonality, subsistence, taphonomy, and paleoecology.

• ANTH 313 Early Civilizations. (3) (Winter) (Prerequisite: ANTH 201 or ANTH 202) Comparison of similarities and differences in the economic, social, political institutions and the religious beliefs and values of the ancient Egyptians, Sumerians, Shang Chinese, Aztecs, Classic Mayas, Inkas, and precocolonial Yorubas. Extent to which cross-cultural regularities and historically-specific factors have shaped their development.

• ANTH 314 Psychological Anthropology 01. (3) (Fall) (Prerequisite: Any Anthropology course) (Restriction: Not open to students who have taken ANTH 214.) A survey of current theories and methods employed in psychological anthropology. Some areas considered are: cross-cultural studies of socialization and personality development; cultural factors in mental illness; individual adaptations to rapid socio-cultural change.

• ANTH 315 Society/Culture: East Africa. (3) (Winter) (Restriction: Open only to students in the Study in Africa program, a full-term field study program in East Africa) Overview of the history, languages and cultures of the region. Examination of the social institutions, cultural patterns, subsistence practices and environmental settings of major social groups, including hunter-foragers, fishers, pastoralists, agro-pastoralists, and cultivators. Discussion of current theoretical and ethnological issues in the study of culture and social change.

• ANTH 316 Prehistory of North America. (3) (Fall) (Prerequisites: ANTH 201 or 203 or equivalent.) Peopling of the New World; cultural adaptations of grasslands, woodland, desert and maritime environments; factors that favoured the shifts in subsistence activities, settlement patterns and social organization.

ANTH 318 Globalization and Religion. (3) (Winter) (Prerequisites: U2 standing or above and ANTH 209, or ANTH 204, or ANTH 355 or ANTH 352 or RELG 207) The interactions between religion and the economic, social and cultural transformations of globalization: relations between globalization and contemporary religious practice, meaning, and influence at personal and collective levels.

• ANTH 319 Inka Archaeology & Ethnohistory. (3) (Winter) (Prerequisite: ANTH 201 or ANTH 202 or HISP 225 or permission of instructor.) In-depth study of material and symbolic manifestations of power and identity in the Pre-Columbian Inka state, drawing on both archaeological and ethnohistoric sources.
ANTH 320 Social Evolution.
(3) (Fall) (Prerequisites: ANTH 202, or ANTH 205, or ANTH 206, or ANTH 208, and Honours/Major/Minor status in Anthropology, or permission of instructor.) The evolution of human social organization, with a focus on pre-industrial societies (hunter-gatherers, small-scale sedentary societies, complex chiefdoms and small scale states).

ANTH 322 Social Change in Modern Africa.
(3) (Fall) (Prerequisite: ANTH 202, or ANTH 204, or ANTH 205, or ANTH 206, or ANTH 209, or ANTH 212, or ANTH 227 or permission of instructor) The impact of colonialism on African societies; changing families, religion, arts; political and economic transformation; migration, urbanization, new social categories; social stratification; the social setting of independence and neo-colonialism; continuity, stagnation, and progressive change.

● ANTH 323 Anthropology of Things.
(3) (Prerequisite(s): any 200-level anthropology course or permission of instructor.) The study of material culture and the ethnography of objects and technologies. Commodity fetishism, semiotics, anthropology of sensory perception. Ethnographies of things, machines and other apparatus.

ANTH 326 Anthropology of Latin America.
(3) (Fall) (Prerequisite: ANTH 202 or ANTH 204 or ANTH 205 or ANTH 206 or ANTH 212 or permission of instructor) Central themes in the anthropology of Latin America, including colonialism, religiosity, sexuality and gender, indigeneity, social movements, and transnationalism.

● ANTH 327 Peoples of South Asia.
(3) (Fall) (Prerequisite: ANTH 202, or ANTH 205, or ANTH 206, or ANTH 212, or permission of instructor) An exploration of the dominant social institutions, cultural themes and perspectives, and psychological patterns found in India and greater South Asia.

● ANTH 329 Modern Chinese Society and Change.
(3) (Winter) (Prerequisites: ANTH 202, or ANTH 205, or ANTH 206, or ANTH 212, or ASIAN 204 or permission of instructor) (Restriction(s): Limited to Anthropology Honours, Major and Minor Program students.) The investigation of similarities and diversity of prehistoric and historic small-scale whaling societies. Examples will be drawn from throughout the world, including, but not limited to, East Asia, Northwest Coast, Arctic, North Atlantic and Northern Europe societies.

ANTH 330 Traditional Whaling Societies.
(3) (Winter) (Prerequisite(s): ANTH201 or ANTH202 or ANTH 203 or permission of instructor) (Restriction(s): Restricted to Anthropology Honours, Major and Minor Program students.) The investigation of similarities and diversity of prehistoric and historic small-scale whaling societies. Examples will be drawn from throughout the world, including, but not limited to, East Asia, Northwest Coast, Arctic, North Atlantic and Northern Europe societies.

● ANTH 331 Prehistory of East Asia.
(3) (Fall) (Prerequisite: ANTH 201 or permission of instructor) Comparative study of prehistoric hunting and gathering cultures in China, Japan, Korea, Mongolia and Eastern Siberia; origins and dispersal of food production; cultural processes leading to the rise of literate civilizations in certain regions of East Asia.

● ANTH 333 Class and Ethnicity.
(3) (Prerequisite: ANTH 202, or ANTH 205, or ANTH 206, or ANTH 212, or permission of instructor) Social, economic, political, symbolic and ideological aspects of ethnicity. Development of ethnic groups. Interplay between social class and ethnicity.

● ANTH 335 Ancient Egyptian Civilization.
(3) (Winter) (Prerequisite: ANTH 201, or ANTH 202, or permission of instructor) A study of changing ecological, economic, social, political, and religious factors influencing the development of ancient Egyptian civilization from prehistoric times to the early Christian era. The unique characteristics of Egyptian civilization are compared to the structural features common to all early civilizations.

● ANTH 338 Native Peoples of North America.
(3) (Winter) (Prerequisite: ANTH 202, or ANTH 204, or ANTH 205, or ANTH 206, or ANTH 209, or ANTH 212, or GEOG 336, or permission of instructor) Ethnographic survey of Native cultures in North America. Conditions arising from European colonization and their social, economic and political impact. Contemporary situation of indigenous peoples.

ANTH 339 Ecological Anthropology.
(3) (Winter) (Prerequisite: ANTH 204, or ANTH 206, or SOCi 328, or GEOG 300 or ENVR 201, or ENVR 203, or permission of instructor) Intensive study of theories and cases in ecological anthropology. Theories are examined and tested through comparative case-study analysis. Cultural constructions of "nature" and "environment" are compared and analyzed. Systems of resource management and conflicts over the use of resources are studied in depth.

ANTH 340 Middle Eastern Society and Culture.
(3) (Winter) (Prerequisite: U2 or U3 standing; and ANTH 202, or ANTH 204, or ANTH 205, or ANTH 206, or ANTH 209, or ANTH 212, or ANTH 227, or permission of instructor.) Exploration of daily life, culture and society in the Middle East, through examination of ethnographic accounts.

● ANTH 341 Women in Cross-cultural Perspective.
(3) (Fall) (Prerequisites: ANTH 202 or ANTH 205 or ANTH 206 or ANTH 342, or Women’s Studies Minor, or permission of instructor) A wide range of anthropological studies are examined and compared, along with theoretical models regarding changes in women’s positions. The impact of colonialism, women and social change, and problems of women in developing societies are examined.

● ANTH 342 Gender, Inequality and the State.
(3) (Winter) (Prerequisite: ANTH 202 or ANTH 205, or ANTH 206, or ANTH 341, or Women’s Studies Minor, or permission of instructor) Comparative studies of gender in stratified societies: Asia, the Middle East, Latin and North America. Economic, political and social manifestations of gender inequality. Oppressive and egalitarian ideologies. State and institutional policies on gender, and male-female strategies. Sexual apartheid and integration.

● ANTH 344 Quantitative Approaches to Anthropology.
(3) (Fall) (Prerequisite: ANTH 201 or ANTH 202 or ANTH 205 or permission of instructor.) (Restriction: Limited to students in Anthropology programs.) A non-statistics course designed to understand and critically evaluate quantitatively based arguments encountered in the literature of all branches of Anthropology.

● ANTH 345 Prehistory of Africa.
(3) (Winter) Archaeological evidence for the evolution of culture in Africa from the beginning of the Paleolithic through the Iron Age, including changes in economic, social and political organization as reflected in selected archaeological sites.

● ANTH 346 Early Prehistory: New World.
(3) (Winter) (Prerequisite: ANTH 201 or ANTH 203, or permission of instructor) Consideration of major issues regarding the initial arrival(s) of human groups in the New World, and their subsequent adaptation to the changing environmental conditions at the end of the Ice Age.
ANTH 352 History of Anthropological Theory.
(3) (Fall) (Prerequisites: one 200-level anthropology course and one other anthropology course at any level) (Restriction: Honours, Joint Honours, Major and Minor students in Anthropology, U2 standing or above) Exploration in the history of anthropological theory; schools, controversies, historical development, methodology, and future trends.

ANTH 355 Theories of Culture and Society.
(3) (Winter) (Prerequisites: one 200-level anthropology course and one other anthropology course at any level) (Restriction: Honours, Joint Honours, Major and Minor students in Anthropology, U2 standing or above) Contributions to contemporary anthropological theory; theoretical paradigms and debates; forms of anthropological explanation; the role of theory in the practice of anthropology; concepts of society, culture and structure; cultural evolution and relativity; interpretive anthropology, post-modernism.

ANTH 357 Archaeological Methods.
(3) (Winter) (Prerequisite: ANTH 201 and one other course in anthropology) (Restriction: Honours, Joint Honours, Major and Minor students in Anthropology, U2 standing or above) The collection of materials in field investigations and their analysis to yield cultural information. The processes of inference and reconstruction in archaeological interpretation.

ANTH 358 The Process of Anthropological Research.
(3) (Winter) (Prerequisites: one 200-level anthropology course and one other anthropology course at any level) (Restriction: Honours, Joint Honours, Major and Minor students in Anthropology, U2 standing or above) The nature of anthropological research as evidenced in monographs and articles; processes of concept formation and interpretation of data; the problem of objectivity.

ANTH 359 History of Archaeological Theory.
(3) (Fall) (Prerequisite: ANTH 201 or ANTH 203, and one additional course in archaeology, or permission of instructor) A systematic investigation of the theories that have guided the interpretation of prehistoric archaeological data since the Middle Ages; the relationship between these theories and theoretical developments in the other social sciences.

ANTH 380 Special Topic 1.
(3) (Fall) (Prerequisite: Permission of instructor) Supervised reading in special topics under the direction of a member of the staff.

ANTH 381 Special Topic 2.
(3) (Winter) (Prerequisite: Permission of instructor) Supervised reading in special topics under the direction of a member of the staff.

ANTH 382 Special Topic 3.
(3) (Fall) (Prerequisite: Permission of instructor) Supervised reading in special topics under the direction of a member of the staff.

ANTH 383 Special Topic 4.
(3) (Winter) (Prerequisite: Permission of instructor) Supervised reading in special topics under the direction of a member of the staff.

ANTH 399 Archaeology of Japan and Korea.
(3) (Prerequisite: One 200-level East Asian Studies or Anthropology course or permission of the instructor.) (Restriction: Not open to students who have taken or are taking EAST 399.) Survey of Japanese and Korean archaeology from the Paleolithic through the Nara and Silla periods. A broad range of evidence (e.g. Tombs, settlements, landscapes, architecture, artifacts, early texts) will be examined to explore the development and nature of social complexity in each region; interaction between regions, and with China.

ANTH 401 Comparative Anthropology.
(3) (Fall) (Prerequisite: Two 300-level anthropology courses or permission of instructor) (Restriction: U3 students in Anthropology) Past use of comparative anthropology and potential future use.

ANTH 402 Topics in Ethnography 1.
(3) (Fall) (Restriction: U3 students in Anthropology or permission of instructor) An exploration of selected ethnographic case material. Investigation of a regional literature or survey of significant contributions to ethnography or examination of an ethnological issue.

ANTH 403 Current Issues in Archaeology.
(3) (Winter) (Prerequisite: ANTH 357 or preferably ANTH 359, or permission of instructor) Current issues in archaeological interpretation, in particular, those relating to processual and postprocessual archaeology.

ANTH 405 Topics in Ethnography 2.
(3) (Winter) (Prerequisite: One 300-Level Anthropology course) (Restriction: U3 students in Anthropology or permission of instructor) An exploration of selected ethnographic case material. Investigation of a regional literature, or survey of significant recent contributions to ethnography, or examination of a current ethnological issue.

ANTH 406 Great Debates in Ethnography.
(3) (Winter) (Restriction: U3 students in Anthropology or permission of instructor) This course will survey theoretical approaches used over the past 100 years, and then focus on contemporary debates using case studies. The nature/culture mind/ body, subject/object, self/other dichotomies central to most work of the body will be problematized.

ANTH 411 Primate Studies & Conservation.
(3) (Winter) (Prerequisite: One course in Anthropology, Geography or Environmental Studies, Introductory Biology, or permission of the instructor.) (Restriction: Students must have completed at least two full semesters at their home university. Only open to students in the Canadian Field Studies in Africa program.) Critical evaluation of theories in primate behaviour, ecology, and conservation that emphasizes direct observations, research design, and developing field methods.

ANTH 412 Topics: Anthropological Theory.
(3) (Winter) (Restriction: U3 students in Anthropology and ANTH 355 or permission of instructor) A concentrated examination of selected theoretical literature. A current theoretical issue will be examined, or the work of a major anthropological theorist or school will be explored and assessed.

ANTH 413 Gender in Archaeology.
(3) (Fall) (Prerequisite: ANTH 201 or ANTH 331 or ANTH 345 or ANTH 347 or ANTH 348 or permission of instructor) Relationship between the structure of the archaeological discipline and construction of gender roles in the past human societies; division of tasks between men and women in subsistence activities, organization of the household and kin groups; and creation of power and prestige in a larger community.

ANTH 416 Environment/Development: Africa.
(3) (Winter) (Restriction: Open only to students in the Study in Africa program, a full-term field study program in East Africa) (Prerequisite: One prior course in Anthropology, Geography or Environmental Studies) Study of environmental effects of development in East Africa, and the impact of changing land tenure and resource use across diverse ecosystems. Models, policies and cases of pastoralist, agricultural, fishing, wildlife and tourism development will be examined, across savanna, desert, forest, highland and coastal environments.

ANTH 418 Environment and Development.
(3) (Fall) (Prerequisite: ANTH 339, or ANTH 349, or SOCI 328, or GEOG 300, or GEOG 302, or permission of instructor) Advanced study of the environmental crisis in developing and advanced industrial nations, with emphasis on the social and cultural dimensions of natural resource management and environmental change. Each year, the seminar will focus on a particular set of issues, delineated by type of resource, geographic region, or analytical problem.
ANTH 419 Archaeology of Hunter-Gatherers.
(3) (Fall) (Prerequisite: ANTH 357 or permission of instructor) A systematic investigation into current theoretical and methodological concerns in hunter-gatherer archaeology. Examples will be drawn from around the world.

ANTH 420 Lithic Technology and Analysis.
(3) (Winter) A survey of current literature on the analysis of stone tools and laboratory sessions illustrating how they were produced and used. Topics to be covered include: fracture mechanics; manufacturing techniques; typological systems; experimental replication; identification of tool functions through microscopic analysis of use-wear.

ANTH 422 Contemporary Latin American Culture & Society.
(3) (Winter) (Prerequisites: ANTH 355, or ANTH 352, or HISP 226, or permission of the instructor.) (Restriction: U3 students.) Themes central to the culture and society of contemporary Latin America and the Caribbean, including globalization, questions of race and ethnicity, (post)modernity, social movements, constructions of gender and sexuality, and national and diasporic identities.

ANTH 423 Mind, Brain and Psychopathology.
(3) (Fall) (Prerequisites: ANTH 227 and Honours/Major/Minor status in Anthropology or Minor Concentration in Social Studies of Medicine or permission of instructor) (Restrictions: U3 students. Not open to students who have taken ANTH 443 under this topic.) Evolutionary origins of the human mind and the 'social brain'; and the psychopathologies that are said to provide access to this evolutionary history, through the perspective of the anthropology of science and psychiatry.

ANTH 430 Symbolic Anthropology 01.
(3) (Fall) (Prerequisite: ANTH 204, or ANTH 355, or permission of instructor) Advanced topics in the use of symbolic theory within anthropology, including culturology and structuralism; the use of semiotic models of society, the relation of structure to process, culture to praxis, and ideology to society; the relevance of epistemology, phenomenology and linguistic philosophy for the study of socio-cultural phenomena.

ANTH 431 Problems in East Asian Archaeology.
(3) (Prerequisite: ANTH 331 or permission of instructor) Critical examination of major issues in East Asian archaeology. Focus may change from year to year. Possible topics include: origins and evolution of Asian population; processes of plant domestication; development of complex societies based on hunting-gathering-fishing; and rise of civilizations and state formation in China, Japan, and Korea.

ANTH 436 North American Native Peoples.
(3) (Winter) (Prerequisite: ANTH 338, or ANTH 336, or permission of instructor) A detailed examination of selected contemporary problems.

ANTH 438 Topics in Medical Anthropology.
(3) (Fall) (Prerequisites: ANTH 227 and Honours/Major/Minor status in Anthropology or Minor Concentration in Social Studies of Medicine or permission of instructor.) Conceptions of health and illness and the form and meaning that illness take are reflections of a particular social and cultural context. Examination of the metaphorical use of the body, comparative approaches to healing, and the relationship of healing systems to the political and economic order and to development.

ANTH 440 Cognitive Anthropology.
(3) (Fall) (Prerequisite, two of the following: ANTH 204, ANTH 314, ANTH 352, ANTH 355, or ANTH 430, or permission of instructor.) The problem of knowledge; the nature of perception; the concept of mind; the relation between thought and language. The concept of meaning: communication, interpretation and symbolism. Social aspects of cognition; ideology.

ANTH 443 Medical Anthropological Theory.
(3) (Fall) (Prerequisites: ANTH 227 and Honours/Major/Minor status in Anthropology or permission of instructor.) This course is intended to provide a comprehensive survey of the literature that constitutes the theoretical and conceptual core of medical anthropology. Emphasis is given to (1) the ethnographic sources of these ideas, (2) their epistemology, and (3) their methodological implications.

ANTH 451 Research in Society and Development in Africa.
(3) (Winter) (Prerequisite: Open to U2 or later students in the AFSS.) (Corequisite: NRSC 452.) (Restriction: Open only to AFSS students during the year of participation in the field. Not open to students who have taken GEOG 451.) Instruction focuses on three goals: 1) existing research in selected core thematic areas, 2) participating in interdisciplinary team research, 3) developing powers of observation and independent inquiry. Students will be expected to develop research activities and interdisciplinary perspectives, and to become conversant with advances in local research in their field.

ANTH 460 Archaeological Field Studies.
(3) (Fall) (Prerequisites: ANTH 201 and ANTH 357) (Restriction: Anthropology Majors; students must be in U2, entering U3) Individual study in an archaeological field setting under staff supervision. Requirements consist of a) research proposal outlining objectives, methodology, and adherence to ethical code of archaeological research, b) field investigations, and c) project report. The project must be arranged with a supervisor before registration.

ANTH 461 Research Techniques.
(3) (Winter) (Prerequisite: ANTH 355 or permission of instructor) (Restriction: U3 students only) Field techniques, interviewing, participant observation, projective, and other testing techniques such as genealogies and life histories, problems of field work, rapport, contact, role definition, culture shock, etc.

ANTH 480 Special Topic 5.
(3) (Fall) (Prerequisite: Completion of all available courses relevant to the topic and consent of the instructor) Supervised reading in advanced special topics under direction of a member of staff.

ANTH 481 Special Topic 6.
(3) (Winter) (Prerequisite: Completion of all available courses relevant to the topic and consent of the instructor) Supervised reading in advanced special topics under direction of a member of staff.

ANTH 482 Special Topic 7.
(3) (Fall) (Prerequisite: Completion of all available courses relevant to the topic and consent of the instructor) Supervised reading in advanced special topics under direction of a member of staff.

ANTH 483 Special Topic 8.
(3) (Winter) (Prerequisite: Completion of all available courses relevant to the topic and consent of the instructor) Supervised reading in advanced special topics under direction of a member of staff.

ANTH 484 Special Topic 9.
(3) (Fall) (Prerequisite: Completion of all available courses relevant to the topic and consent of the instructor) Supervised reading in advanced special topics under direction of a member of staff.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses taught only in alternate years.
† Professional Practice (Stage) in Dietetics involving special prerequisites.
✦ Indicates that departmental approval/permission must be obtained by a student prior to registration.
¶ Denotes courses not available as Education electives.
✱ Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
❉ Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
▲ Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
ANTH 485 Special Topic 10.  
(3) (Winter) (Prerequisite: Completion of all available courses relevant to the topic and consent of the instructor) Supervised reading in advanced special topics under direction of a member of staff.

ANTH 490 Honours Thesis 1.  
(6) (Fall) (Prerequisites: U3 Honours status and permission of instructor) Supervised reading and preparation of a research report under the direction of a member of staff.

ANTH 491 Honours Thesis 2.  
(6) (Winter) (Prerequisites: U3 Honours status and permission of instructor) Supervised reading and preparation of a research report under the direction of a member of staff.

ANTH 492 Honours Thesis.  
(6) (Fall, Winter) (Prerequisites: U3 Honours status and permission of instructor) Supervised reading and preparation of a research report under the direction of a member of staff.

ANTH 492D1 (3), ANTH 492D2 (3) Honours Thesis.  
(Fall) (Students must register for both ANTH 492D1 and ANTH 492D2.) (No credit will be given for this course unless both ANTH 492D1 and ANTH 492D2 are successfully completed in consecutive terms) (ANTH 492D1 and ANTH 492D2 together are equivalent to ANTH 492) Supervised reading and preparation of a research report under the direction of a member of staff.

ANTH 492N1 (3), ANTH 492N2 (3) Honours Thesis.  
(Winter) (Students must also register for ANTH 492N1) (No credit will be given for this course unless both ANTH 492N1 and ANTH 492N2 are successfully completed in a twelve month period) (ANTH 492N1 and ANTH 492N2 together are equivalent to ANTH 492) Supervised reading and preparation of a research report under the direction of a member of staff.

ANTH 499 Internship: Anthropology.  
(3) (Fall and Winter) (Prerequisite: Permission of the departmental Internship Advisor.) (Restriction: Open to U2 and U3 students normally after completing 30 credits of a 90 credit degree program or 45 credits of a 69-120 credit program, a minimum CGPA of 2.7, and permission of the departmental Internship Advisor. This course will normally not fulfill program requirements for seminar or 400- level courses.) Internship with an approved host institution or organization.

● ANTH 500 Chinese Diversity and Diaspora.  
(3) (Winter) (Restrictions: Reserved for U3 Anthropology undergraduate students or graduate students, any other students by permission of instructor.) (Enrolment Limit: 25 students.) Explores ethnic diversity within mainland China, as well as the diversity of Chinese cultures of diaspora, living outside the mainland, often as minorities subject to other dominant cultures.

● ANTH 502 Social Life of Death.  
(3) (Fall) Theoretical and methodological approaches of attitudes, beliefs, and ritual practices surrounding death and mortuary practices. Topics covered include material manifestations of status and identity; symbolic dimensions of dead bodies; ancestors, kinship, and kingship; emotions, mourning, and memory; and ritual violence.

● ANTH 503 Production of the Past.  
(3) (Fall) (Prerequisite(s): U3 or permission of instructor) The study of the past in cultural anthropology. Representations of the past, colonialism, nationalism, heritage, dominant and subaltern narratives. Silences and violence in the making of the past.

● ANTH 511 Computational Approaches to Prehistory.  
(3) (Winter) (Prerequisites: ANTH 357 or ANTH 359.) (Restriction: Restricted to U3 and graduate students in the Anthropology Department.) Covers the application of computational methods to archaeological problems and the modeling and simulation of prehistoric populations.

● ANTH 512 Political Ecology.  
(3) (Winter) Historical, theoretical and methodological development of political ecology as a field of inquiry on the interactions between society and environment, in the context of conflicts over natural resources.

● ANTH 522 Issues in Biological Anthropology.  
(3) Recent developments in biological anthropology, such as the evolution of social systems in primates, foraging strategies, and emerging infectious diseases.

● ANTH 540 Topics in Anthropological Theory.  
(3) (Fall) (Restriction: This course is restricted to U3 Honours students in the Anthropology Department or with permission of the instructor.) Examination and discussion of topics of current theoretical interest.

● ANTH 551 Advanced Topics: Archaeological Research.  
(3) (Fall) Examination and discussion of topics of current theoretical or methodological interest in archaeology. Topics will be announced at the beginning of term.

● ANTH 555 Advanced Topics in Ethnology.  
(3) (Winter) (Restriction: Honours students at the U3 level in the Anthropology Department or with permission of instructor) Examination and discussion of topics of current theoretical or methodological interest in ethnology. Topics will be announced at the beginning of term.

● ANTH 575 Concepts of Race.  
(3) (Winter) (Prerequisites: ANTH 201, or ANTH 202, or ANTH 203, and ANTH 352 or ANTH 359.) (Restriction: U3 students and graduate students in Anthropology programs.) Examination of the evolution of the idea of race within anthropology, and the impact which the discipline’s debates have had on society.

ARTh-Art History  
Offered by: Art History & Communication St

● ARTH 199 FYS: Themes in Art History.  
(3) (Topics will vary from year to year.) (Restriction: Open only to students in U0 or U1. Students may take only one First Year Seminar.) An introduction to a selected theme in art history.

ARTH 200 Introduction to Art History 1.  
(3)

● ARTH 201 Introduction to Art History 2.  
(3) (Restriction: Not open to students in Art History programs; or students who have taken ARTH 200 prior to Fall 1991.) An introductory survey of the major figures, monuments and movements in Western painting, sculpture and architecture from the 15th century to the present. The underlying goal of course is to develop the student's awareness of the relation of form to content in a work of art.

ARTH 204 Introduction to Medieval Art and Architecture.  
(3) Surveys the arts from late Antiquity to the fourteenth century in Western Europe. Focuses on the body and space to introduce artistic and architectural concepts, practices, and styles from the late Roman, Byzantine and Carolingian empires to monastic and royal patronage of the French Kings.

ARTH 205 Introduction to Modern Art.  
(3) (Restriction: Not open to students who have taken ARTH 337 or ARTH 338) The course is an introduction to the modern period in art history which begins around 1750. It examines the development in both painting and sculpture and relates to changes in the social and political climate of the times.

ARTH 207 Introduction Early Modern Art 1400-1600.  
(3) Survey of the visual culture of early modern Europe (1400-1600), including selected works in their historical context and the uses of visual forms in the formation of identities across various social spheres and geographical locations.

ARTH 209 Introduction to Ancient Art and Architecture.  
(3) Survey of ancient art and architecture; pre-historic Europe, ancient Egypt, Greece and Rome. Focus is on issues of political power, gender, sexuality, race, the formation of individual and group identities, and the relation between the body and social space.
ARTh 215 Introduction to East Asian Art.  
(3) (Restriction: Not open to students taking or who have taken EAST 215.) Introductory survey of some of the major developments in the visual arts of Japan, China, and Korea. Emphasis will be placed on the diversity of artistic traditions in East Asia and the intersections among these traditions.

ARTh 222 Introduction Early Modern Art 1600-1700.  
(3) Survey of the visual culture of early modern Europe (1600-1700), including selected works in their historical context and the uses of visual forms in the formation of identities across various social spheres and geographical locations.

ARTh 226 Introduction to Eighteenth-Century Art and Architecture.  
(3) (Restriction: Not open to students who have taken ARTh 334.) Paintings, prints, sculpture and architecture produced in Europe in the ‘long’ eighteenth century, with an emphasis on major artists. Themes include the teaching of art and its display, the emergence of ‘publics’ for art, and eighteenth-century aesthetics.

ARTh 300 Canadian Art to 1914.  
(3) Canadian art from the pre-contact period through the colonial and nation-building centuries until the onset of the First World War. Emphasis will be placed on the diverse cultural influences that have been brought into contact in Canada.

ARTh 301 Canadian Art 1914 - Present.  
(3) (Restriction: Not open to students who have taken 123-225) Canadian art from early 20th century formulations of national identity through the regional, national, and international movements that define Canadian Modernism, Postmodernism, to new trends emerging in the 21st century.

ARTh 302 Aspects of Canadian Art.  
(3) An examination of selected subjects relevant to a specific period of art in Canada.

ARTh 305 Methods in Art History.  
(3) (Prerequisite: Any 200-level Art History course, or by permission of the instructor.) Restriction: Restricted to students in the Major, Minor, Honours and Joint Honours programs in Art History.) An introduction to the main methodologies used in the analysis of the work of art: formalism, iconography/iconology, semiotics, structuralism, post-structuralism, deconstruction, psychoanalysis, Marxism, feminism and postcolonialism.

ARTh 310 Postcolonialism.  
(3) (Examine selected art historians who respond to postcolonial theorists and analyse how paintings, sculpture, buildings, and visual culture participated in or resisted European imperialism in the nineteenth and twentieth centuries.

ARTh 314 The Medieval City.  
(3) (Towns and cities in the Middle Ages as architectural entities, their urban planning and development; main building types, profane and ecclesiastical: castle, defence works, town halls, houses, cathedrals, churches and monasteries; the role architecture played in forming a society.

ARTh 321 Visual Culture of the Dutch Republic.  
(3) Examination of the functions of visual culture in merchant capitalist society, and the changing status of art, artists and patrons after the Protestant Reformation. A wide range of visual imagery (from Rembrandt and Vermeer to popular culture) will be linked with 17th-century economic, historic, religious, colonial, scientific and literary developments.

ARTh 322 Realism and Impressionism.  
(3) The course is an investigation into Realism and Impressionism, the principal artistic movements between ca. 1840 - 1880.
sexuality, horizontality and verticality.

ARTH 339 Critical Issues - Contemporary Art.
(3) (Prerequisite: one 200-level Art History course recommended, or by permission of the instructor.) A critical examination of contemporary art from Abstract Expressionism to Pop art, Minimalism, Conceptual art, Land art, and Body art. Focuses on the development and critique of modernism, the dematerialization or art, the blurring of art and popular culture, the artist as shaman, temporality, and aesthetic redefinitions of subjectivity.

● ARTH 340 The Gothic Cathedral.
(3) Prerequisite: reading knowledge of French.) An introduction to the Gothic cathedral: architecture, sculpture, and stained glass. Also considered is its genesis, its construction and its historical environment. Although main emphasis will be on French cathedrals of the 12th and 13th centuries, their development in England, Germany and Spain will also be represented.

ARTH 347 19th Century Architecture.
(3) The historicism of the 19th century in Europe and North America gives with its reception of several different styles - medieval as well as classical - an important insight into the meaning of architectural form, the creation of an architectural language and its use in a politically and economically rapidly changing society.

● ARTH 351 Vision and Visuality in Art History.
(3) An interdisciplinary investigation on how works of art construct the visual experience and on how they are received by the viewer.

ARTH 352 Feminism in Art and Art History.
(3) A consideration of the impact of feminism on recent art history, focusing on the examination of gender constructions in art and theory.

ARTH 353 Selected Topics in Art History 1. (3) Topic: 19th Century Sculpture. Study of a special field in the History of Art and Architecture taught by a visiting scholar.

● ARTH 354 Selected Topics Art History 2.
(3) Study of a special field in the History of Art and Communications.

● ARTH 356 Modern & Contemporary Chinese Art.
(3) (Restrictions: Not open to students taking or who have taken EAST 356.) Examination of modern Chinese art and visual culture from the 1920's to the present. Emphasis will be placed on the formation of the artistic avant-garde in the 20th century and its relation to socialist and post-socialist mass culture.

● ARTH 357 Early Chinese Art.
(3) (Prerequisite: One 200-level Art History or East Asian Studies course, or by permission of instructor.) Survey of Chinese art and visual culture during the pre-imperial and early imperial periods (1500BCE-900CE). A wide range of visual images and media (painting, architecture, inscription, funerary art) will be examined in the historical context of the rise and development of the empire.

ARTH 358 Later Chinese Art (960-1911).
(3) (Prerequisite: One 200-level Art History or East Asian Studies course, or by permission of Instructor.) Survey of art and visual culture in later imperial China from Song to Qing dynasties. A broad range of media (e.g. painting, calligraphy, print, architecture) will be examined to explore the development of literati aesthetics and its intersections with the arts of the court, the temple, and the marketplace.

● ARTH 360 Studies in the Photographic.
(3) The course provides an introduction to the history of photography while considering its relation to major movements in the history of painting from the time of the invention of photography, in 1839, to the present day.

● ARTH 365 Studies in Later Medieval Art.
(3) (Prerequisite: Permission of instructor.)

● ARTH 367 Italian Renaissance Art 2.
(3) (This course will be given in Florence, Italy, as part of McGill's Summer Study in Italy Program. For specific details about the course content, please consult Prof. B. Wilson, Dept. of Art History and Communication.) Exploring art history of Renaissance Florence, focusing on the role played by the Medici in fostering the arts as patrons. Study of the development of Florentine art and architecture against complex social and economic forces that shaped humanist culture and Renaissance taste.

● ARTH 374 Studies in Later 18th and 19th Century Art 01.
(3) (Prerequisite: Any 200 level Art History course or instructor's permission.)

● ARTH 379 Studies: Modern Art and Theoretical Problems 02.
(3) (Prerequisite: Any 200 level Art History course or instructor's permission)

ARTH 400 Selected Methods in Art History.
(3) (Prerequisite: ARTH 305, or permission of instructor) (Corequisite: ARTH 401) (Restriction: For Honours and Joint Honours Art History students only.) A seminar course dealing with methodological and historiographical issues in Art History.

ARTH 401 Honours Research Paper.
(3) (Prerequisite: ARTH 305, or permission of the instructor.) (Corequisite: ARTH 400.) (Restrictions: For Honours and Joint Honours Art History students only.) An Honours research paper written in consultation with an academic advisor.

ARTH 420 Selected Topics in Art and Architecture 1.
(3) An advanced study of selected topics in the History of Art and Architecture.

ARTH 421 Selected Topics in Art and Architecture 2.
(3)

ARTH 422 Selected Topics in Art and Architecture 3.
(3) Topic: Seminar in Contemporary Art.

● ARTH 423 Arts of Medieval Spain.
(3) (Prerequisite: Any 300-level course or permission of instructor.) This course examines the arts of medieval Spain from the late antique 'barbarian' invasions through the fifteenth century. Within this broad span, particular attention will be paid to key themes, including historiography, the centrality of pilgrimage for shaping artistic practice, and the concept of 'convivencia' among Christians, Muslims, and Jews.

ARTH 435 Early Modern Visual Culture.
(3) (Prerequisite: one 300-level Art History course recommended, or by permission of the instructor.) Selected topics in early modern visual culture (c. 1500-1750).

● ARTH 440 The Body and Visual Culture.
(3) (Restriction: Not open to students who have taken ARTH 510.) An examination of modern and contemporary redefinitions of corporeality in art, theory and visual culture. The course focuses on the dissemination of the body in the context of late capitalism and ongoing developments of image, information and biotechnologies. Interdisciplinary perspective establishing a dialogue between art and science.

ARTH 447 Independent Research Course.
(3) (Prerequisite: permission of instructor.)

● ARTH 457 Brushwork in Chinese Painting.
(3) (Prerequisite: At least one EAST or ARTH course or permission of instructor.) (Restriction: Not open to students taking or who have taken EAST 457.) The seminar takes an in-depth look at the function and meaning of the brushwork in traditional Chinese painting. Analysis of paintings will be combined to close readings of theoretical texts in translation.

● ARTH 473 Studies in 17th and Early 18th Century Art 04.
(3)

ARTH 474 Studies in Later 18th and 19th Century Art 03.
(3) (Prerequisite: Any 200-level Art History course or permission of instructor)

● ARTH 479 Studies: Modern Art and Theoretical Problems 04.
(3) (Prerequisite: Any 200-level Art History course or permission of instructor)
ARTH 490 Museum Internship.
(3) The Museum Internship is intended to provide direct exposure to museum collections and practical experience in the museum setting for students interested in museum professions. Individually designed in consultation with the professor in charge of internships and the appropriate personnel at one of the Montreal museums.

CANS-Canadian Studies
Offered by: Institute for Study of Canada

CANS 200 Introduction to the Study of Canada.
(3) An overview of approaches to the study of Canada, including economic, political, historical and cultural dimensions.

CANS 202 Canadian Cultures: Context and Issues.
(3) (Prerequisite: ability to read French) A survey course which traces the history of Canadian cultures from the middle of the 19th century to the present. It surveys the diversity of Canadian cultural identities through literature, drama, art and the mass media. The course features guest lecturers. Some course material will be in French.

● CANS 300 Topics in Canadian Studies 1.
(3) (Prerequisite: CANS 200 or permission of instructor) Fall 2011 topic is Kanawake: History of a Mohawk Village, Reserve, Suburb and Nation. An interdisciplinary course on a Canadian Studies topic.

● CANS 301 Topics in Canadian Studies 2.
(3) (Prerequisite: CANS 200 or permission of instructor) Topic is Canadian Provincial Politics. An interdisciplinary course on a Canadian Studies topic.

● CANS 303 Topics in Canadian Studies 3.
(3) (Prerequisite: CANS 200 or permission of instructor) Winter 2012 topic is Geography of Canada. An interdisciplinary course on a Canadian Studies topic.

● CANS 304 Nationalism in Canada.
(3) (Restriction: Not open to students who have taken or are taking CANS 300, CANS 301, or CANS 303.) Canadian experience of nationalism over the past two centuries.

● CANS 305 Canadian Modernity.
(3) Forms of modernity in Canada, including modern technology, communications, and aesthetics, and their convergence with nationalism.

● CANS 306 Issues in Native Studies.
(3) (Restriction: Not open to students who have taken Issues in Native Studies as a CANS topics course.) Past and present achievements and concerns within Native societies across Canada.

● CANS 307 Canada in the World.
(3) Canada’s interaction with other countries and regions.

● CANS 308 Sex and Gender in Canada.
(3) Sex and gender in Canada in the past and the present.

● CANS 401 Canadian Studies Seminar 1.
(3) (Topic will vary from year to year depending on staff interests.) (Prerequisite: CANS 200 or permission of instructor) Topic is Maps and Mapmaking in Early Canada. An interdisciplinary seminar on a Canadian Studies topic.

● CANS 402 Canadian Studies Seminar 2.
(3) (Prerequisite: CANS 200 or permission of instructor) An interdisciplinary seminar on a Canadian Studies topic.

● CANS 403 Canadian Material Culture.
(3) (Restriction: U2 and U3 students.) Exhibitions that address Canadian history and contemporary identities through material culture, art, and other media, including the place of material culture in everyday life, through personal collections, and unconventional exhibition spaces.

● CANS 404 Canadian Studies Seminar 4.
(3) (Prerequisite: CANS 200 or permission of instructor) An interdisciplinary seminar on a Canadian Studies topic.

● CANS 405 Canadian Studies Seminar 5.
(3) (Prerequisite: CANS 200 or permission of instructor) An interdisciplinary seminar on a Canadian Studies topic.

● CANS 406 Canadian Studies Seminar 6.
(3) (Prerequisite: CANS 200 or permission of instructor.) An interdisciplinary seminar on a Canadian Studies topic.

● CANS 407 Regions of Canada.
(3) (Prerequisite: CANS 200 or permission of instructor) Canadian regionalism and its manifestations in literature and the media, as well as in social and public policy, focusing on one region in Canada.

● CANS 408 Individual Reading Course.
(3) (Restrictions: Reserved for final-year students enrolled in the Canadian Studies major or minor concentration. Permission must be obtained from the Canadian Studies advisor and from the supervising professor before registration.) Supervised reading on an explicitly multidisciplinary topic under the direction of a professor working in the field of Canadian Studies.

● CANS 409 Canadian Studies Seminar 9.
(3) (Prerequisite: CANS 200 or permission of instructor) Topic is Health Care in Canada. An interdisciplinary seminar on a Canadian Studies topic.

● CANS 410 Canadian Studies Seminar 10.
(3) (Topic will vary from year to year depending on staff interests.) (Prerequisite: CANS 200 or permission of instructor.) Topic is Migration and Racialization in Canada. An interdisciplinary seminar on a Canadian Studies topic.

● CANS 412 Canada and Americas Seminar.
(3) (Prerequisites: CANS 200 or permission of the Instructor) Canada and the Americas.

● CANS 413 Canada and Quebec Seminar.
(3) (Prerequisites: CANS 200 or permission of the Instructor) (Note: A reading knowledge of French is required) Comparison of Canada and Quebec.

● CANS 480 Honours Thesis 1.
(3) (Restriction: Students in the Honours Program in Canadian Studies.) Supervised research for and preparation of the Honours Thesis Proposal.

● CANS 481 Honours Thesis 2.
(3) (Prerequisite: CANS 480.) (Restriction: Students in the Honours Program in Canadian Studies.) Supervised writing of Honours thesis.

● CANS 492 Joint Honours Thesis.
(3) (Restriction: Open to students in the Joint Honours Program.) Honours thesis research to be carried out under the supervision of a faculty member.

● CANS 492D1 (1.5), CANS 492D2 (1.5) Joint Honours Thesis.
(Restriction: Open to students in the Joint Honours Program.) (Students must register for both CANS 492D1 and CANS 492D2 together are equivalent to CANS 492) Honours thesis research to be carried out under the supervision of a faculty member.

● CANS 499 Internship - Canadian Studies.
(3) (Open to U2 and U3 students after completing CANS 200, 30 credits of a 90 degree or 45 credits of a 96-120 credit degree, and a minimum CGPA of 3.0. Students may register in the Fall or Winter semester for Summer internships.) (Prerequisites: CANS 200 and permission of program Director) Internship with an approved host institution or organization.

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* Denotes courses taught only in alternate years.
‡ Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
❖ Professional Practice (Stage) in Dietetics involving special prerequisites.
† Denotes courses with limited enrolment.
Denotes courses taught only in alternate years.
Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
CNS 501 Interdisciplinarity & Canadian Studies.  
(3) (Prerequisite: For undergraduate students CNS 200 or permission of instructor.) (Restriction: Course will be restricted to final year students and graduate students.) An interdisciplinary seminar in Canadian studies.

**CATH-Catholic Studies**  
Offered by: Arts - Dean's Office

**CATH 200 Introduction to Catholicism.**  
(3) An interdisciplinary study of the Roman Catholic tradition in its changing contexts. Traces major themes in the Catholic tradition. Emphasis will vary from year to year on spiritual, intellectual, institutional, cultural and historical dimensions.

**CATH 310 Catholic Intellectual Traditions.**  
(3) (Prerequisites: CATH 200, RELG 320, or permission of instructor) This course examines Catholic intellectual perspectives, schools of thought, and major thinkers, with focus on topics such as God, faith and reason, the human person, history, culture and community. Will also examine the interaction between Catholicism and other perspectives and traditions.

**CATH 315 Catholicism and Moral Culture.**  
(3) (Prerequisite: CATH 200, or permission of instructor) A critical examination of theological and philosophical perspectives which inform contemporary Catholic moral thinking. This course explores the interplay of the evolving body of Catholic moral teaching with other developments and debates in ethics.

**CATH 320 Scripture and Catholicism.**  
(3) (Prerequisite: CATH 200, or permission of instructor) The role of Scripture in Roman Catholic thought and culture. Topics include Catholic perspectives on the interpretation of Scripture, debates about the role of Scripture in Catholic theology, and the incorporation of Scripture into popular Catholic cultures.

**CATH 325 The Religious Sense.**  
(3) (Restriction: Not open to those who have taken 190-370A in 2001-02 or CATH 370 in 2002-03.) An inquiry into what constitutes the religious sense, from a Catholic perspective; the relationship between reason, moral certainty and the religious sense; reasonable and unreasonable positions and concrete strategies before the ultimate questions concerning existence; freedom and responsibility, using literature, music and film.

**CATH 340 Catholic Social Thought.**  
(3) (Prerequisite: CATH 200, or permission of instructor) Explores Catholic social and political thought from a comparative perspective. Topics may include the Church-State distinction, subsidiarity, the common good, pluralism, the Catholic human rights revolution, natural law and the international order, Christian Democracy and the relationship between Catholicism, liberalism and communitarianism.

**CATH 370 Topics in Catholic Studies.**  
(3)

**CATH 460 Catholic Studies Seminar.**  
(3) (Prerequisite: CATH 200, or permission of instructor) A research seminar on a major theme and/or thinker. The seminar will evolve around primary source materials.

**CLAS-Classics**  
Offered by: History and Classical Studies

**CLAS 200 Introduction to Ancient Greek Literature.**  
(3) Survey of ancient Greek literature in translation from Homer to Second Sophistic, covering the key genres and texts of the Archaic, Classical, Hellenistic and Imperial eras. The material to be discussed includes Archaic epic, lyric and elegy; Classical tragedy, comedy and historiography; Hellenistic poetry, and literature of the Roman Imperial period.

**CLAS 202 Greek Civilization: Classical.**  
(3) The civilization of the Golden Age of Greece and the formation of the Classical Tradition, with some attention to its transmission to the Romans. Texts will be read in translation.

**CLAS 203 Greek Mythology.**  
(3) A survey of the myths and legends of Ancient Greece.

**CLAS 206 Classics in Modern Media.**  
(3) Receptions of the classical paradigm of Ancient Greece and Rome in modern media, the classical tradition and current scholarship.

**CLAS 208 Roman Literature and Society.**  
(3) Life and society in the Roman Empire as reflected in contemporary authors of varying genres (epic, history, philosophy, satire and the novel).

**CLAS 210 Introductory Latin 1.**  
(6) A course for beginners.

**CLAS 210D1 (3), CLAS 210D2 (3) Introductory Latin 1.**  
(Students must register for both CLAS 210D1 and CLAS 210D2) (No credit will be given for this course unless both CLAS 210D1 and CLAS 210D2 are successfully completed in consecutive terms) CLAS 210D1 and CLAS 210D2 together are equivalent to CLAS 210 A course for beginners.

**CLAS 212 Introductory Latin 2.**  
(3) (Winter) (Restriction: Permission of instructor required) A refreshers course. Review of grammar and syntax; reading of simple sentences and connected passages.

**CLAS 220 Introductory Ancient Greek.**  
(6) A course for beginners.

**CLAS 220D1 (3), CLAS 220D2 (3) Introductory Ancient Greek.**  
(Students must register for both CLAS 220D1 and CLAS 220D2) (No credit will be given for this course unless both CLAS 220D1 and CLAS 220D2 are successfully completed in consecutive terms) A course for beginners.

**CLAS 230D1 (3), CLAS 230D2 (3) Introductory Modern Greek.**  
(Restriction: Not open to students who have taken CLAS 236, CLAS 237 or CLAS 238.) (Students must register for both CLAS 230D1 and CLAS 230D2.) (No credit will be given for this course unless both CLAS 230D1 and CLAS 230D2 are successfully completed in consecutive terms) A course for beginners.

**CLAS 300 Greek Drama and the Theatre.**  
(3) A study of the Greek dramatists, both tragic and comic, in the light of their plays, with special emphasis on the theatrical techniques of the authors and the means of production in the Greek theatre.

**CLAS 309 The Greek and Roman Novel.**  

**CLAS 310 Reading Latin.**  
(3) (Prerequisite: CLAS 210 or permission of instructor) Morphology, syntax, and vocabulary of the language.

**CLAS 311 Catullus/Ovid.**  
(3) (Prerequisite: CLAS 210 or CLAS 211 or CLAS 212 or permission of the Department)

**CLAS 312 Intermediate Latin: Poetry.**  
(3) (Prerequisite: CLAS 210 or CLAS 211 or CLAS 212 or permission of the Department)

**CLAS 313 Intermediate Latin: Cicero.**  
(3) (Prerequisite: CLAS 210 or CLAS 211 or CLAS 212 or permission of the Department)

**CLAS 314 Intermediate Latin: Historians.**  
(3) (Prerequisite: CLAS 210 or CLAS 211 or CLAS 212 or permission of the Department)

**CLAS 315 Intermediate Latin: Selections.**  
(3) (Prerequisite: CLAS 210 or CLAS 211 or CLAS 212 or permission of the Department)

**CLAS 316 Intermediate Latin: Medieval.**  
(3) (Prerequisite: CLAS 210 or CLAS 211 or CLAS 212 or permission of the Department) Selection.
### CLAS 320 Reading Ancient Greek.
(3) (Prerequisite: CLAS 220 or permission of instructor, minimum grade for prerequisite is B+.) Exhaustive review of basic grammar. Further development of vocabulary, syntax, and style through close readings of selected texts focusing on classical Attic prose.

- **CLAS 321 Intermediate Greek: Plato/Xenophon.**
  (3) (Prerequisite: CLAS 220 or permission of the instructor)

- **CLAS 322 Intermediate Greek: Orators.**
  (3) (Prerequisite: CLAS 220 or permission of the instructor)

- **CLAS 323 Intermediate Greek: Homer.**
  (3) (Prerequisite: CLAS 220 or permission of the instructor) (Selections)

- **CLAS 324 Intermediate Greek: Poetry.**
  (3) (Prerequisite: CLAS 220 or permission of the instructor)

- **CLAS 325 Intermediate Greek: Later Prose.**
  (3) (Prerequisite: CLAS 220 or permission of the instructor)

- **CLAS 326 Intermediate Greek: Selections.**
  (3) (Prerequisite: CLAS 220 or permission of the instructor)

- **CLAS 331 Intermediate Modern Greek Language.**
  (3) (Prerequisite: CLAS 230 or CLAS 235 or CLAS 237 or permission of the instructor) Competence in the language at the intermediate level through the study of grammar, vocabulary and derivatives. Excerpts in prose and poetry introducing the civilization of modern Greece.

- **CLAS 332 The Modern Greek Novel.**
  (3) (Prerequisite: CLAS 220 or permission of instructor)

- **CLAS 333 Modern Greek Poetry.**
  (3) (Prerequisite: CLAS 230 or permission of the instructor)

- **CLAS 335 Language and Civilization/Modern Greece 2.**
  (3) (Prerequisite: CLAS 237 or permission of the instructor) A continuation of CLAS 331.

- **CLAS 336 Introductory Modern Greek Literature 1.**
  (3)

- **CLAS 347 Special Topics in Classics.**
  (3)

- **CLAS 348 Greek and Roman Topography.**
  (3) (Prerequisites: One of CLAS 200, CLAS 203, CLAS 208, HIST 205, HIST 231, or permission of instructor) (This course taught in Italy - please refer to www.mcgill.ca/italian - deadline April 1, 2010) Selected physical sites, monuments and locales of the ancient Greek and Roman World using the evidence of archaeology, history and literature. Sites will vary yearly and may include cities, cult and burial precincts, sanctuaries, battlefields and places of memory and literary inspiration.

- **CLAS 370 Greek in Greek Drama.**
  (3) Each of four Greek tragedies (e.g. Oedipus, Antigone, Bacchae, Medea) analyzed along with its modern interpretations. The heroines of fiction as related to real Greek women by comparing myth transformation in tragedy with documentary material.

- **CLAS 380 Ancient Greek Religion.**
  (3) (Prerequisite: CLAS 203 or HIST 205 or permission of instructor.) Focuses on the history of Greek religion in the Classical Period. Particular attention will be paid to the Greek concept of divinity, local pantheons, civic festival calendars, the topography of myth and ritual, ideas concerning the concept of divinity, local pantheons, civic festival calendars, the topography of myth and ritual, ideas concerning the afterlife, mystery cults, oracles and games and the literary representations of religion.

- **CLAS 381 Roman Religion.**
  (3) Approaches to and problems of Roman religion. The formation of religious topography, problems of religion and empire, the religious interaction between Rome and other Mediterranean peoples, the complex discourse between religion and philosophy, the reformulation of Roman religion during the Imperial period, and the rise of Christianity within a pagan Roman world.

- **CLAS 404 Classical Tradition.**
  (3) (Prerequisite: 3 credits in Classics or related courses; or permission of instructor) Some episodes from the long history of the transmission and reception of the Classics in later times. Students will choose periods or times for special study.

- **CLAS 411 Advanced Latin: Epic.**
  (3) (Prerequisites: 9 credits of Intermediate Latin or permission of instructor) The reading of selected texts in Roman Epic Poetry in the original Latin.

- **CLAS 412 Advanced Latin: Lyric.**
  (3) (Prerequisites: 9 credits of Intermediate Latin or permission of instructor) The reading of selected texts in Roman Lyric Poetry in the original Latin.

- **CLAS 413 Advanced Latin: Satire.**
  (3) (Prerequisites: 9 credits of Intermediate Latin or permission of instructor) The reading of selected texts in Roman Satire Poetry in the original Latin.

- **CLAS 414 Advanced Latin: History.**
  (3) (Prerequisite: 9 credits of Intermediate Latin or permission of instructor) The reading of selected texts in Roman History Prose in the original Latin.

- **CLAS 416 Advanced Latin: Philosophy.**
  (3) (Prerequisite: 9 credits of Intermediate Latin or permission of instructor) The reading of selected texts in Roman History Prose in the original Latin.

- **CLAS 418 Advanced Latin: Special Topics.**
  (3) (Prerequisite: 6 credits of Intermediate Latin or permission of instructor) (Note: All ancient texts will be read in the original) Themes in Roman literature, culture, and history.

- **CLAS 421 Advanced Ancient Greek: Epic.**
  (3) (Prerequisite: 9 credits of Intermediate Ancient Greek or permission of instructor) The reading of selected texts in Greek Epic Poetry in the original Ancient Greek.

- **CLAS 422 Advanced Ancient Greek: Lyric.**
  (3) (Prerequisite: 9 credits of Intermediate Ancient Greek or permission of instructor) The reading of selected texts in Greek Lyric Poetry in the original Ancient Greek.

- **CLAS 423 Advanced Ancient Greek: Drama.**
  (3) (Prerequisite: 9 credits of Intermediate Ancient Greek or permission of instructor) The reading of selected texts in Greek Drama Poetry in the original Ancient Greek.

- **CLAS 424 Advanced Ancient Greek: History.**
  (3) (Prerequisites: 9 credits of Intermediate Ancient Greek or permission of instructor) The reading of selected texts in Greek History Prose in the original Ancient Greek.

- **CLAS 425 Advanced Greek: Oratory.**
  (3) (Prerequisite: 9 credits of Intermediate Greek or permission of instructor) The reading of selected texts in Greek Oratory Prose in the original Ancient Greek.

- **CLAS 426 Advanced Greek: Philosophy.**
  (3) (Prerequisite: 9 credits of Intermediate Ancient Greek or permission of instructor) The reading of selected texts in Greek Philosophy Prose in the original Ancient Greek.

- **CLAS 427 Advanced Ancient Greek: Documents.**
  (3) (Prerequisite: 6 credits of intermediate Latin or permission of the instructor, minimum grade for prerequisite is B+) A reading of ancient Greek epigraphical (inscriptive) or papyrological sources. Textual criticism and interpretation of selected literary and non-literary ancient Greek texts and...
documents written on stone, metal, terracotta, wood, bone, or papyrus.

- **CLAS 428 Advanced Ancient Greek: Special Topics.**
  (3) (Prerequisite: 6 credits of intermediate Latin or permission of the instructor, minimum grade for prerequisite is B+)
  (Note: All ancient texts will be read in the original) Themes in ancient Greek literature, culture, and history.

- **CLAS 431 Senior Modern Greek Literature.**
  (3)

- **CLAS 432 Senior Modern Greek Reading Course.**
  (3)

- **CLAS 449 Seminar: Natural Law.**
  (3) (Prerequisite: a relevant course in political or legal philosophy or in ancient history) The origin, development and criticism of theories of natural law in the Greek and Roman thinkers. Attention will be paid to the influence of these theorists on conceptions of natural law in the modern world. Original sources to be read in translation.

- **CLAS 484 Advanced Topics.**
  (3) (Prerequisite: Any ancient history course or 300-level Classics course or permission of instructor.) An in-depth look at various topics in classical studies.

- **CLAS 490 Greek and Roman Historiography.**
  (3) (Prerequisite: 3 credits in Classics at the 300 level or up or permission of instructor.) Seminar on the works of the Greek and Roman historians (in translation) who founded a new literary genre for the exploration of past and present events; interpretation of their approaches towards history and theories for their study.

- **CLAS 515D1 (3), CLAS 515D2 (3) Latin Authors and Texts.**
  (Prerequisite (Undergraduate): 9 credits in Intermediate Latin or equivalent) (Restriction: Honours and Graduate students) (Students must register for both CLAS 515D1 and CLAS 515D2.) (No credit will be given for this course unless both CLAS 515D1 and CLAS 515D2 are successfully completed in consecutive terms) Completion of a Reading List in Latin, with Faculty supervision, to be tested by written examination.

- **CLAS 525D1 (3), CLAS 525D2 (3) Ancient Greek Authors & Texts.**
  (Prerequisite (Undergraduate): 9 credits in Intermediate Greek or equivalent) (Restriction: Honours and Graduate students) (Students must register for both CLAS 525D1 and CLAS 525D2.) (No credit will be given for this course unless both CLAS 525D1 and CLAS 525D2 are successfully completed in consecutive terms) Completion of a Reading List in Greek, with Faculty supervision, to be tested by written examination.

**COMS-Communication Studies**

Offered by: Art History & Communication St

- **COMS 199 FYS: Themes in Communication Studies.**
  (3) (Topics will vary from year to year.) (Restriction: Open only to students in U0 or U1. Students may take only one First Year Seminar.) An introduction to selected theme in communication studies.

- **COMS 200 History of Communication.**
  (3) (Restriction: Not open to students who have ENGC 200.) The social and cultural implications of major developments in communications from prehistory to the electronic era. Thematic and conceptual introduction to the underlying media technologies and to some key issues and practices of historical thinking about their role in society.

- **COMS 210 Introduction to Communication Studies.**
  (3) (Restriction: Not open to students who have taken ENGL 278 or ENGC 210) The social and cultural implications of media. Surveys theory and case studies relevant key issues such as the ownership, structure and governance of media industries; the significance of emergent media technologies; and the roles of media as cultural forms and practices.

- **COMS 230 Communication and Democracy.**
  (3) Introduction to investigation of the relationship between communication, media practices and democracy. Examines the role of media and communication in existing and emerging democratic contexts, and the challenges of constructing and maintaining a democratic media and communication environment on the domestic and international levels.

- **COMS 300 Media and Modernity in the 20th Century.**
  (3) (Prerequisite: One of the following: COMS 200, COMS 210, or COMS 230 or permission of the instructor.) An overview of the growth and impact of 20th century media such as radio, television, cinema and the mass-circulation press; their role in shaping the technological, socio-political and aesthetic dimensions of urban modernity.

- **COMS 310 Media and Feminist Studies.**
  (3) (Prerequisite: One of the following: COMS 200, COMS 210, COMS 230, SDST 250, WMST 200, PHIL 242 or permission of the instructor.) Introduction to feminist studies of the media. Impact of feminist and queer theory on media studies; current issues about gender in the media. Emphasis will be placed on critical analysis of media representations of gender in relation to other social differences, such as race, class and sexuality.

- **COMS 320 Media and Empire.**
  (3) (Prerequisite: One of the following: COMS 200, COMS 210, or COMS 230 or permission of the instructor.) The relationship between mass media and empire-building, as well as the role of mass and alternative media in anti-imperialist movements. Topics may include: Print technologies and the British Empire; shipping technologies, industrialization and the slave trade; new media and the anti-war and anti-globalization movements.

- **COMS 330 Media in Cultural Life.**
  (3) (Prerequisite: One of the following: COMS 200, COMS 210, or COMS 230 or permission of the instructor.) Introduction to a range of theories and qualitative methods in communication studies for the critical analysis of media practices in cultural life.

- **COMS 340 New Media.**
  (3) (Prerequisite: One of the following: COMS 200, COMS 210, or COMS 230 or permission of the instructor.) Critical analysis of new media from cultural, philosophical, technological and institutional perspectives.

- **COMS 350 Sound Culture.**
  (3) (Prerequisite: One of the following: COMS 200, COMS 210, COMS 230 or permission of the instructor.) Analysis of sound culture, including sonic and aural media, sound art and architecture, sound in everyday life, sonic institutions and theoretical accounts of the role of sound in communication.

- **COMS 354 Media Studies of Crime.**
  (3) (This course is sometimes cross-listed with ARTH 353 when taught as "Visual Culture of Crime" by Prof. Will Straw.) (Prerequisite: One of the following: COMS 200, COMS 210, or COMS 230 or permission of the instructor.) (Restriction: Not open to students who have taken or are taking ARTH 353 when topic is "Visual Culture of Crime"). Critical analysis of the social construction of crime from the perspectives of its visual culture and representation in popular, historical and new media forms.

- **COMS 361 Selected Topics Communication Studies 1.**
  (3) (Prerequisite: One of the following: COMS 200, COMS 210, or COMS 230 or permission of the instructor.) (Topic will change depending upon term and instructor) Topic F2011: Alternative Media Study of a special field in media theory.

- **COMS 362 Selected Topics Communication Studies 2.**
  (3) (Prerequisite: One of the following: COMS 200, COMS 210, or COMS 230 or permission of the instructor.) (Topic will change depending upon term and instructor) Study of a special field of critical inquiry into media and/or technological practices.
COMS 365 Introduction to Electronic Media Policy.  
(3) (Prerequisites: Successful completion of COMS 210, COMS 220, or COMS 230.) (Note: Combined lecture and seminar format. Language of instruction is English. Maximum enrolment is 90.) Electronic communications systems such as broadcasting, cable, telephony, and the Internet are vital public resources for social, economic, political, and cultural interaction in modern life. This course introduces students to the political and economic forces that govern policies about the flow of information, knowledge, and ideas using such media systems.  

● COMS 400 Critical Theory Seminar.  
(3) (Prerequisites: One of the following 200-level courses: COMS 200, COMS 210, COMS 230 AND one of the following 300-level courses: COMS 300, COMS 310, COMS 320, COMS 330, COMS 340, COMS 350, COMS 354, COMS 361, COMS 362 or permission of the instructor.) The tradition of critical social theory as it has influenced the field of media and communication studies. Strains of critical theory studies may include: Marxism; the Frankfurt school; poststructuralism, deconstruction and postmodernism; feminism; cultural studies, postcolonialism and critical race theory.  

● COMS 410 Cultures in Visualization.  
(3) (Prerequisites: One of the following 200-level courses: COMS 200, COMS 210, COMS 230 AND one of the following 300-level courses: COMS 300, COMS 310, COMS 320, COMS 330, COMS 340, COMS 350, COMS 354, COMS 361, COMS 362 or permission of the instructor.) Analysis of imaging technologies in their cultural contexts. Focus on different traditions of visual representation through the investigation of artistic and scientific visualization practices.  

● COMS 425 Urban Culture & Everyday Life.  
(3) (Prerequisites: One of the following 200-level courses: COMS 200, COMS 210, COMS 230 AND one of the following 300-level courses: COMS 300, COMS 310, COMS 320, COMS 330, COMS 340, COMS 350, COMS 354, COMS 361, COMS 362 or permission of the instructor.) Explores how popular and artistic cultural texts interrogate the dimensions of urban culture that shape everyday life, such as transnationalization/localization, gentrification, migration and other displacements; the proliferation of mobile media and communication technologies; and the political mobilization of fear and anxiety about violence and terrorism.  

COMS 490 History and Theory of Media.  
(3) (Prerequisites: One of the following 200-level courses: COMS 200, COMS 210, COMS 230 AND one of the following 300-level courses: COMS 300, COMS 310, COMS 320, COMS 330, COMS 340, COMS 350, COMS 354, COMS 361, COMS 362 or permission of the instructor.) Emergent themes in media history and media theory, and their application to current issues in communications studies.  

COMS 491 Media, Communication & Culture.  
(3) (Prerequisites: One of the following 200-level courses: COMS 200, COMS 210, COMS 230 AND one of the following 300-level courses: COMS 300, COMS 310, COMS 320, COMS 330, COMS 340, COMS 350, COMS 354, COMS 361, COMS 362 or permission of the instructor.) Emergent themes and issues in cultural approaches to media and communication studies.  

COMS 492 Power, Difference and Justice.  
(3) (Prerequisites: One of the following 200-level courses: COMS 200, COMS 210, COMS 230 AND one of the following 300-level courses: COMS 300, COMS 310, COMS 320, COMS 330, COMS 340, COMS 350, COMS 354, COMS 361, COMS 362 or permission of the instructor.) Media systems and their role in social relations of power and difference that are maintained and challenged through communication practices.  

COMS 493 Current Issues in Electronic Media Policy.  
(3) (Prerequisites: Successful completion of COMS 200, COMS 210, or COMS 230.) This seminar examines current/emergent scholarship about policy debates and issues related to electronic media worldwide. Topics vary; they include but are not limited to Internet Governance, Electronic Privacy/Surveillance, Access to Information/Knowledge, Media Diversity, Community and Social Justice Media, Communication Rights and Freedom of Expression, and Civil Society Policy Advocacy.  

● COMS 495 Directed Reading.  
(3) (3 credits at the 200-level and 3 credits at the 300-level in COMS courses and permission of the instructor) Directed reading in a specialized area of communication studies to be undertaken with the guidance of an instructor with relevant expertise in the area.  

COMS 497 Independent Study.  
(3) (3 credits at the 200-level and 3 credits at the 300-level in COMS courses and permission of the instructor) Independent study of a particular topic in communication studies taken under the supervision of an instructor with relevant expertise in the area.  

COMS 510 Canadian Broadcasting Policy.  
(3) (Course intended for senior undergraduates and graduate students with a specialized interest in Canadian broadcasting policy.) (Prerequisites: 3 credits of COMS coursework at the 200-level, 3 credits of COMS coursework at the 300 or 400-level, or permission of instructor.) Key issues in the history and evolution of radio, television and new media in Canada. The legislative and regulatory framework of Canadian broadcasting, the relationship between public and privately-owned media, the emergence of new media, and the efforts of interest groups to influence the direction of the Canadian media system.  

● COMS 521 Communications in History.  
(3) North American communication studies have undergone five discernible changes in the definition and focus of the field. The major "schools" of thought to be covered are the Chicago and Lazarsfeld heritages, the institutionalization of communication science in the academy, and the post-modern period.  

● COMS 541 Cultural Industries.  
(3) The convergence of computerized technologies and cultural industries and how these have produced entire new forms of cultural expression in film, TV, and the Internet.  

COMS 560 Communications and Development.  
(3)  

EAST-Asian Language & Literature  
Offered by: East Asian Studies  

● EAST 199 FYS: East Asian Culture.  
(3) (Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS.) (Note: Enrolment limit 25. Students who register for more than one FYS will be obliged to withdraw from all but one of them) (Note: Language of instruction is English.) An introduction to East Asian culture based on close examination of primary and secondary texts as well as visual materials.  

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.
EAST 211 Introduction: East Asian Culture: China.
(3) This course provides a critical introduction to central themes in Chinese culture. The course will also examine the changing representations of the Chinese cultural tradition in the West. Readings will include original sources in translation from the fields of literature, philosophy, religion, and cultural history.

EAST 212 Introduction: East Asian Culture: Japan.
(3) An introduction to Japan which presents various aspects of Japanese literature, culture, history, religions, philosophy and society.

EAST 213 Introduction: East Asian Culture: Korea.
(3) This course provides a critical introduction to central themes in Korean culture, including Korean literature, religions, philosophy, and socio-economic formations.

• EAST 214 Japanese Animation & New Media.
(3) Animation and new media in Japan, with an emphasis on postwar developments.

EAST 215 Introduction to East Asian Art.
(3) (Restriction: Not open to students taking or who have taken ARTH 215.) Introductory survey of some of the major developments in the visual arts of Japan, China, and Korea. Emphasis will be placed on the diversity of artistic traditions in East Asia and the intersections among these traditions.

• EAST 216 Chinese Action Film.
(3) (Note: Course is given in English.) The study of the Chinese-language action film, with an emphasis on Mainland, Hong Kong and Taiwan cinemas. Topics will include: the historical development of martial arts film, the relation between traditional Chinese art forms and action film, and the formation of transnational cinemas and audiences.

EAST 220D1 (4.5), EAST 220D2 (4.5) First Level Korean.
(Students must register for both EAST 220D1 and EAST 220D2.) (No credit will be given for this course unless both EAST 220D1 and EAST 220D2 are successfully completed in consecutive terms) Introduction to the basic structures of the standard Korean language. The aim of this course is to give students a basic knowledge of the Korean language. Special emphasis is put on handling everyday conversation, reading and writing short texts, and mastering basic grammar rules.

EAST 230D1 (4.5), EAST 230D2 (4.5) First Level Chinese.
(Students must register for both EAST 230D1 and EAST 230D2.) (No credit will be given for this course unless both EAST 230D1 and EAST 230D2 are successfully completed in consecutive terms) Introduction to the basic structures of Mandarin Chinese, Pin-yin romanization and 750 characters for reading and writing. Emphasis on developing aural and oral skills through communication games and interaction activities. Animated films are used as part of teaching materials.

EAST 240D1 (4.5), EAST 240D2 (4.5) First Level Japanese.
(Students must register for both EAST 240D1 and EAST 240D2.) (No credit will be given for this course unless both EAST 240D1 and EAST 240D2 are successfully completed in consecutive terms) Introduction to the basic grammar and sentence patterns of the Japanese language in both oral and written forms. In reading and writing skills students will be introduced to katakana, hiragana and kanji.

EAST 303 Current Topics: Chinese Studies 1.
(3) (Fall) (Restriction: Departmental approval required) Consideration of important issues in Chinese Studies. Content of the course will vary from year to year.

EAST 304 Current Topics: Chinese Studies 2.
(3) (Winter) (Restriction: Departmental approval required) Consideration of important issues in Chinese Studies. Content of the course will vary from year to year.

EAST 305 Current Topics: Japanese Studies 1.
(3) (Fall) (Restriction: Departmental approval required) Consideration of important issues in Japanese Studies. Content of the course will vary from year to year.

(3) (Winter) (Restriction: Departmental approval required) Consideration of important issues in Japanese Studies. Content of the course will vary from year to year.

• EAST 307 Topics: Chinese Language and Literature 1.
(3) (Fall) (Prerequisite: EAST 211 or permission of instructor) (Restriction: Departmental approval required) Consideration of selected topics and aspects of Chinese literature and/or language. The content of the course may vary from year to year.

• EAST 308 Topics: Chinese Language and Literature 2.
(3) (Winter) (Prerequisite: EAST 211 or permission of instructor) (Restriction: Departmental approval required) Consideration of selected topics and aspects of Chinese literature and/or language. The content of the course may vary from year to year.

EAST 313 Current Topics: Korean Studies 1.
(3) (Fall) (Restriction: Departmental approval required.) Consideration of important issues in Korean Studies. Content of the course will vary from year to year.

EAST 314 Current Topics: Korean Studies 2.
(3) (Winter) (Restriction: Departmental approval required) Consideration of important issues in Korean Studies. Content of the course will vary from year to year.

EAST 320D1 (4.5), EAST 320D2 (4.5) Second Level Korean.
(Prerequisite: EAST 220 or equivalent) (Students must register for both EAST 320D1 and EAST 320D2.) (No credit will be given for this course unless both EAST 320D1 and EAST 320D2 are successfully completed in consecutive terms) The aim of this course is to give students a fluent speaking ability in daily conversation, advanced grammar knowledge, improved reading and writing skills. Special emphasis is put on the efficient use of grammar, enrichment of vocabulary, and mastering useful expressions encountered in everyday life.

EAST 330D1 (4.5), EAST 330D2 (4.5) Second Level Chinese.
(Prerequisite: EAST 230 or equivalent or permission of the instructor) (Students must register for both EAST 330D1 and EAST 330D2.) (No credit will be given for this course unless both EAST 330D1 and EAST 330D2 are successfully completed in consecutive terms) The same communicative approach as in EAST 230 is used to develop aural and oral skills on daily topics. In addition to textbooks, Chinese films on videotapes will be incorporated as teaching materials.

(Prerequisite: EAST 240 or equivalent or permission of instructor) (Restriction: Departmental approval required) (Students must register for both EAST 340D1 and EAST 340D2.) (No credit will be given for this course unless both EAST 340D1 and EAST 340D2 are successfully completed in consecutive terms) Continuation of the study of oral and written Japanese.

• EAST 350 Gender and Sexuality in Chinese Literature.
(3) (Prerequisite: EAST 211 or permission of instructor) (Note: Readings in English translation.) Gender and sexuality in modern and/or premodern Chinese literature with emphasis on representation of gender relations, notions of masculinity and femininity, morality and sexuality. Readings from fiction, drama, poetry, and/or other genres are approached from a variety of critical perspectives.

EAST 351 Women Writers of China.
(3) (Core course for the Women's Studies program) (Prerequisite: EAST 211 or permission of instructor.) A study of fiction, drama, and poetry by women writers in imperial, modern, and/or contemporary China.

EAST 352 Critical Approaches to Chinese Literature.
(3) (Prerequisite: EAST 211.) This course will examine traditional and/or modern genres of Chinese literature with a focus on different forms of Chinese and Western literary analysis.

• EAST 353 Approaches to Chinese Cinema.
(3) (Prerequisite: EAST 211.) Development of Chinese film in the 20th century, with an emphasis on both critical approaches to film as well as film history.

• EAST 354 Taoist and Buddhist Apocalypses.
(3) Visions of the end of the world in Medieval Chinese Buddhist and Taoist literature will be contrasted with Western apocalyptic materials. The course will trace the development of Buddhism and Taoism in China, focusing on millenarian movements, soteriology, public worship, and ritual.
EAST 356 Modern & Contemporary Chinese Art.  
(3) (Restriction: Not open to students taking or who have taken ARTH 356.) Examination of modern Chinese art and visual culture from the 1920s to the present. Emphasis will be placed on the formation of the artistic avant-garde in the 20th century and its relation to socialist and post-socialist mass culture.

- EAST 357 Early Chinese Art.  
(3) (Prerequisite: One 200-level Art History or East Asian Studies course, or by permission of instructor.) (Restriction: Not open to students taking or who have taken ARTH 357.) Survey of Chinese art and visual culture during the pre-imperial and early imperial periods (1500 BCE-900 CE). A wide range of visual images and media (painting, architecture, inscription, funerary art) will be examined in the historical context of the rise and development of the empire.

EAST 358 Later Chinese Art (960-1911).  
(3) (Prerequisites: One 200-level Art History or East Asian Studies course, or by permission of instructor.) (Restriction: Not open to students taking or who have taken ARTH 358.) This course examines cultural production in early and medieval Japan, focusing on calligraphy, painting, picture scrolls, gestures and their relation to textual production. Readings explore various classic texts, taboos against seeing and narrative modes of cognition.

- EAST 360 Japanese Cinema.  
(3) This course will study the development of film in Japan during the 20th century with a particular focus on the analysis of film form, genres and history.

- EAST 361 Japanese Society and Culture.  
(3) (Prerequisites: One 200-level Art History or East Asian Studies course, or by permission of instructor.) This course addresses a number of analytic approaches to mass culture in order to examine the culture industry of post-war Japan. Emphasis on narrative strategies in popular or consumer fiction and on the problems of marginalized writers.

- EAST 362 Japanese Cinema.  
(3) (Prerequisites: Any introductory course in literature or cultural studies, or permission of instructor.) This course examines cultural production in early and medieval Japan, focusing on calligraphy, painting, picture scrolls, gestures and their relation to textual production. Readings explore various classic texts, taboos against seeing and narrative modes of cognition.

(3) (Prerequisite: EAST 212 or permission of instructor.) This course examines cultural production in early and medieval Japan, focusing on calligraphy, painting, picture scrolls, gestures and their relation to textual production. Readings explore various classic texts, taboos against seeing and narrative modes of cognition.

- EAST 364 Mass Culture and Postwar Japan.  
(3) (Prerequisite: Any introductory course in literature or cultural studies, or permission of instructor.) This course addresses a number of analytic approaches to mass culture in order to examine the culture industry of post-war Japan. Emphasis on narrative strategies in popular or consumer fiction and on the problems of marginalized writers.

- EAST 365 History of Sexuality in Japan.  
(3) Social and cultural history of sexuality in Japan. Possible topics include pre-modern sexuality and relations to court, religion and anthropology; pre-modern sex and gender relations; modern sexuality and gender identities; sexuality and the rise of science; relation to nationalism; feminism and queer movements.

- EAST 366 Society and Community in Korea.  
(3) This course will analyze topics in colonial and contemporary Korean life with a focus on the social institutions of family, school and workplace.

EAST 390 The Chinese Family in History.  
(3) (Prerequisite: EAST 211 or HIST 208 or HIST 218 or permission of the instructor.) (Restriction: Not open to students who have taken or are taking HIST 344.) Exploration of the Chinese family in history both as an institution - in its religious, legal, economic, political aspects - and as a lived reality.

- EAST 399 Archaeology of Japan and Korea.  
(3) (Prerequisite: One 200-level East Asian Studies or Anthropology course or permission of the instructor.) (Restriction: Not open to students who have taken or are taking ANTH 399.) Survey of Japanese and Korean archaeology from the Paleolithic through the Nara and Silla periods. A broad range of evidence (eg. Tombs, settlements, landscapes, architecture, artifacts, early texts) will be examined to explore the development and nature of social complexity in each region; interaction between regions, and with China.

- EAST 420 Third Level Korean 1.  
(3) (Restriction: Not open to students who have taken or are taking EAST 420D1/D2.) Advanced grammar, enhancing written and oral comprehension and improving writing and speaking skills.

- EAST 421 Third Level Korean 2.  
(3) (Prerequisite: EAST 420 or equivalent or permission of instructor.) (Restriction: Not open to students who have taken or are taking EAST 420D1/D2.) Advanced grammar, enhancing written and oral comprehension and improving writing and speaking skills.

- EAST 430D1 (3), EAST 430D2 (3) Third Level Chinese.  
(Prerequisite: EAST 330 or equivalent or permission of instructor) Students must register for both EAST 430D1 and EAST 430D2.) (No credit will be given for this course unless both EAST 430D1 and EAST 430D2 are successfully completed in consecutive terms) A communicative approach will be used to provide students with skills to communicate in various situations, express their ideas and feelings, and discuss various aspects of culture and life in China and in Canada. Teaching materials include Chinese movies on videotape and slides depicting Chinese life and culture.

- EAST 440D1 (3), EAST 440D2 (3) Third Level Japanese.  
(Prerequisite: EAST 340 or equivalent or permission of instructor) Students must register for both EAST 440D1 and EAST 440D2.) (No credit will be given for this course unless both EAST 440D1 and EAST 440D2 are successfully completed in consecutive terms) More advanced study of the Japanese language. Emphasis will be placed on reading.

- EAST 450 Topics: Chinese Literature.  
(3) (Prerequisite: A 300-level course in any literature.) Advanced seminar in selected genres, themes and issues in Chinese literature.

- EAST 451 Topics: Chinese Language.  
(3) (Prerequisites: EAST 353, a 300-level film studies course, or permission of the instructor.) Advanced seminar in selected themes and issues in Chinese film.

- EAST 456 Chinese Drama and Popular Culture.  
(3) (Prerequisite: EAST 211 or permission of instructor) This course will examine the regional background of popular culture in Late Imperial China, focusing on the development of distinct traditions of regional drama. The levels of texts and audiences and the social and ritual contexts of theatrical performance in pre-modern China will also be considered.

- EAST 457 Brushwork in Chinese Painting.  
(3) (Prerequisite: At least one EAST or ARTH course or permission of instructor.) (Restriction: Not open to students taking or who have taken ARTH 457.) The seminar takes an in-depth look at the function and meaning of the brushwork in traditional Chinese painting. Analysis of paintings will be combined to close readings of theoretical texts in translation.

(3) (Prerequisite: Any course in literature or cultural studies above the introductory level, or permission of instructor) An examination of the modern Japanese novel as a form which both affirms and resists the form of the European novel. Readings explore the particular problems of the Japanese novel in the context of modernization, westernization, and colonialism.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.
EAST 462 Japan in Asia.
(3) (Prerequisite: Any East Asian Studies course above the introductory level, or permission of the instructor) This course introduces theories of cultural interaction, interpretation, and intertextuality in order to reconsider Japanese modes of reception and selection of Chinese texts and technologies. Readings range from early Japanese to 20th century texts. Readings in translation.

EAST 464 Image, Text, Performance.
(3) (Prerequisite: Any East Asian Studies course above the introductory level, or permission of the instructor) Drawing on theoretical approaches from a variety of media studies, including cinema, performance and performativity, and elsewhere, this course looks at cultural production in premodern and modern Japan. Topics to be addressed range from calligraphy and writing, to theatre, and film.

EAST 466 Feminism and Japan.
(3) (Prerequisite: Any East Asian Studies course above the introductory level, or permission of instructor) Seminar dealing with issues relating to gender, the feminine, especially in the context of Japan. The course will draw on a range of theoretical frameworks, and may include the analysis of literature, film, art and popular culture.

EAST 467 Topics: Japanese Cinema.
(3) (Prerequisites: EAST 214, EAST 362 or permission of the instructor.) Topics in the study of Japanese cinema.

EAST 490 Confucius and the Classics.
(3) (Prerequisite: EAST 211 or HIST 208 or HIST 218 or permission of instructor.) This course will examine the Five Classics and their relation to the figure of Confucius. It will survey various interpretations of Confucius and the Classics and the role these played in various periods of Chinese history.

EAST 491 Tutorial: East Asian Languages and Literatures 1.
(3) (Fall) (Restriction: Departmental approval required) Advanced reading course in language or literature.

EAST 492 Tutorial: East Asian Languages and Literatures 2.
(3) (Winter) (Restriction: Departmental approval required) Advanced reading course in language or literature.

EAST 493 Special Topics: East Asian Studies 1.
(3) (Fall) (Prerequisite: Any EAST course at the 300-level or above or permission of instructor) (Restriction: Departmental approval required) Advanced reading course under supervision of instructor on certain aspects of East Asian Studies. Topics will vary from year to year.

EAST 494 Special Topics: East Asian Studies 2.
(3) (Winter) (Prerequisite: Any EAST course at the 300-level or above or permission of instructor) (Restriction: Departmental approval required) Advanced reading course under supervision of instructor on certain aspects of East Asian Studies. Topics will vary from year to year.

EAST 495 Joint Honours Thesis: East Asian Studies.
(3) Supervised reading and preparation of an Honours thesis under the direction of a member of staff.

EAST 495D1 (1.5), EAST 495D2 (1.5) Joint Honours Thesis: East Asian Studies.
(Prerequisite: U3 Joint Honours status and permission of instructor) (Restriction: Departmental approval required) (Students must register for both EAST 495D1 and EAST 495D2.) (No credit will be given for this course unless both EAST 495D1 and EAST 495D2 are successfully completed in consecutive terms) Supervised reading and preparation of an Honours thesis under the direction of a member of staff.

(Prerequisite: U3 Honours status and permission of the instructor) (Restriction: Departmental approval required) (Students must register for both EAST 498D1 and EAST 498D2.) (No credit will be given for this course unless both EAST 498D1 and EAST 498D2 are successfully completed in consecutive terms) Supervised reading and preparation of an Honours thesis under the direction of a member of staff.

EAST 499 Internship: East Asian Studies.
(3) (Restriction: Open to U2 and U3 students with a minimum CGPA of 2.7, and permission of the departmental Internship Advisor. This course will not normally fulfill program requirements for seminar or 400-level courses.) Internship with an approved host institution or organization.

EAST 501 Advanced Topics in Japanese Studies 1.
(3) (Fall) (Prerequisite (Undergraduate): permission of instructor) (Restriction: Departmental approval required) Consideration of selected topics and aspects of Japanese culture and society.

EAST 502 Advanced Topics in Japanese Studies 2.
(3) (Winter) (Prerequisite (Undergraduate): permission of instructor) (Restriction: Departmental approval required) Consideration of selected topics and aspects of Japanese culture and society.

EAST 503 Advanced Topics in Chinese Studies 1.
(3) (Fall) (Prerequisite (Undergraduate): permission of instructor) (Restriction: Departmental approval required) Consideration of selected topics and aspects of Chinese culture and society.

EAST 504 Advanced Topics in Chinese Studies 2.
(3) (Winter) (Prerequisite (Undergraduate): permission of instructor) (Restriction: Departmental approval required) Consideration of selected topics and aspects of Chinese culture and society.

EAST 515 Seminar: Beyond Orientalism.
(3) (Prerequisite (Undergraduate): any EAST course at the 300 level or above or permission of instructor) Examines the cultural stakes and ethical implications of applying Western European models of understanding to East Asian societies. Provides background on interdisciplinary debates around "otherness", "cultural appropriation", and "postcolonialism", focusing on their history within East Asian Studies and their impact on that field's methodological assumptions, self-definition, and institutional practices.

EAST 520 Fourth Level Korean 1.
(3) (Prerequisite: EAST 421 or permission of instructor.) (Restriction: Not open to students who have taken or are taking EAST 520D1/D2) Continuation of EAST 421 (Third Level Korean 2) with more emphasis on writing and reading skills.

EAST 521 Fourth Level Korean 2.
(3) (Prerequisite: EAST 520 or equivalent or permission of instructor.) (Restriction: Not open to students who have taken or are taking EAST 520D1/D2) Continuation of EAST 520. The main focus and the course organization remain the same with more advanced content.

EAST 530 Fourth Level Chinese.
(6) (Summer) (Prerequisite (Undergraduate): EAST 430 or equivalent) Development of skills required to conduct academic discussions in oral as well as in written forms. Teaching materials include original texts from Chinese newspapers, Chinese literature and videos.
EAST 530D1 (3), EAST 530D2 (3) Fourth Level Chinese. (Prerequisite (Undergraduate): EAST 430 or equivalent) (Students must register for both EAST 530D1 and EAST 530D2.) (No credit will be given for this course unless both EAST 530D1 and EAST 530D2 are successfully completed in consecutive terms) (EAST 530D1 and EAST 530D2 together are equivalent to EAST 530) Development of skills required to conduct academic discussions in oral as well as in written forms. Teaching materials include original texts from Chinese newspapers, Chinese literature and videos.

EAST 533 Classical Chinese 1. (3) (Prerequisite: EAST 330 or equivalent.) (Restriction: Not open to students who have taken EAST 433.) An introduction to the grammar and syntax of classical Chinese. Readings are selected from well-known Confucian and Taoist classics, and philosophical and historical writings from premodern China.

● EAST 534 Classical Chinese 2. (3) (Prerequisite: EAST 330 or equivalent.) (Restriction: Not open to students who have taken EAST 434.) Continuation of EAST 533 at a more advanced level.

● EAST 535 Chinese for Business 1. (3) (Prerequisite: EAST 430 or equivalent or permission of instructor) This course aims to provide advanced students of Chinese with training in the terminology and syntax necessary for business communications. Topics will include many different aspects of business negotiations, such as price negotiation, methods of payment, etc.

● EAST 536 Chinese for Business 2. (3) (Prerequisite: EAST 535 or equivalent or permission of instructor) This course is a continuation of EAST 535. It is designed to further develop students’ linguistic competence for business communication, and to provide students with some knowledge on China’s trade policies as well as on different methods of trading with China.

● EAST 537D1 (3), EAST 537D2 (3) China Today Through Translation. (Prerequisite (Undergraduate): students with native or near-native proficiency may register directly, other students require permission of instructor) (Restriction: Not open to students who have taken EAST 437) Students must register for both EAST 537D1 and EAST 537D2.) (No credit will be given for this course unless both EAST 537D1 and EAST 537D2 are successfully completed in consecutive terms) A course to develop practical translation skills and understanding of contemporary China, focusing on Sino-Canadian and multi-lateral political, cultural and trade issues. Interpretive skills will be enhanced through translation exercises and discussion in class. Course materials include original documents and videos from the business communications and other fields.

EAST 540D1 (3), EAST 540D2 (3) Fourth Level Japanese. (Prerequisite (Undergraduate): EAST 440 or equivalent or permission of instructor) (Students must register for both EAST 540D1 and EAST 540D2.) (No credit will be given for this course unless both EAST 540D1 and EAST 540D2 are successfully completed in consecutive terms) Advanced study of Japanese, with emphasis on reading Japanese newspapers. Classes will be conducted entirely in Japanese.

EAST 543 Classical Japanese 1. (3) (Prerequisite (Undergraduate): EAST 440 or permission of instructor) This course will offer an introduction to the grammar and syntax of classical Japanese. Readings of well-known pre-modern writings.

EAST 544 Classical Japanese 2. (3) (Prerequisite (Undergraduate): EAST 543 or permission of instructor) The grammar and syntax of classical Japanese. Readings in well-known writings of pre-modern Japan.

● EAST 546 Advanced Reading: Japanese. (3) (Prerequisite: EAST 440 or permission of instructor.) (Restriction: Departmental approval required) In-depth reading and analysis of advanced Japanese texts. Readings will be selected from a variety of prose genres ranging from fiction to journalistic writing.

EAST 547 Advanced Translation in Japanese. (3) (Prerequisite (Undergraduate): EAST 440 or equivalent or permission of the instructor) (Restriction: Departmental approval required) Translation of Japanese texts into English or French. Materials will be selected from a variety of prose genres ranging from fiction to journalistic writing.

● EAST 550 Classical Chinese Poetry Themes and Genres. (3) (Prerequisite (Undergraduate): EAST 433 or permission of instructor) A study of major themes and genres of classical Chinese poetry from its beginnings to the Yuan dynasty (14th century), with emphasis on critical analysis of text and context. Readings of poems in the original.

● EAST 551 Technologies of Self in Early China. (3) (Prerequisite (Undergraduate): EAST 433 or permission of instructor) (Restriction: Departmental approval required) Translation of Chinese texts into English or French. Materials will be selected from a variety of prose genres ranging from fiction to journalistic writing.

● EAST 552 The Yijing (Book of Changes). (3) (Prerequisite: Any 300-level or above EAST course or permission of instructor.) (Note: No prior knowledge of Chinese required). In-depth examination of the Yijing, known in the West as the Book of Changes. The course will combine a close reading of this pivotal text and its numerous commentaries with a social and cultural analysis of the diverse functions it fulfilled through Chinese history - philosophical, political, religious, aesthetic and cosmological.

● EAST 554 Classical Japanese 2. (3) (Prerequisite (Undergraduate): EAST 543 or permission of the instructor) (Restriction: Departmental approval required) Translation of Chinese texts into English or French. Materials will be selected from a variety of prose genres ranging from fiction to journalistic writing.

● EAST 557 Advanced Translation in Chinese. (3) (Prerequisite: EAST 430 or equivalent or permission of instructor) (Restriction: Departmental approval required) Translation of Chinese texts into English or French. Materials will be selected from a variety of prose genres ranging from fiction to journalistic writing.

● EAST 559 Advanced Topics: Chinese Literature. (3) (Prerequisite (Undergraduate): one advanced course in EAST or permission of instructor) (Restriction: Departmental approval required) Consideration of selected topics and aspects of Chinese literature. The content of the course may vary from year to year, ranging from contemporary to modern pre-modern literature.

● EAST 562 Japanese Literary Theory and Practice. (3) (Prerequisite (Undergraduate): Any course in EAST above the 200 level and at least a year of an East Asian Language, or permission of instructor) This course examines Japanese theories of literary production and practice with an emphasis on 20th century thought.
EAST 563 Images, Ideograms, Aesthetics.
(3) (Prerequisite (Undergraduate): EAST 320 or EAST 330 or EAST 340 or equivalent, or permission of instructor) This course explores theories and usage of ideograms and images in Asian texts, both modern and premodern.

EAST 564 Structures of Modernity: Japan.
(3) (Prerequisite (Undergraduate): Any East Asian Studies course above the introductory level, or permission of the instructor) This course explores relations between some of the principal sites which structure the experience of “modernity” in Japan (and elsewhere) - from bodies and cities, to the urban context in general. Along with general approaches (e.g. the idea of everyday life; questions of time), specific topics may include speed, music, architecture, crime, etc.

EAST 569 Advanced Topics: Japanese Literature.
(3) (Prerequisite: one advanced course in EAST or permission of instructor) (Restriction: Departmental approval required) Consideration of selected topics and aspects of Japanese literature. The content of the course may vary from year to year from contemporary to modern to pre-modern literature.

EAST 570
(3)

EAST 576 Advanced Reading in Korean.
(3) (Prerequisite: EAST 420 or permission of instructor) (Restriction: Departmental approval required) In-depth reading and analysis of advanced Korean texts. Readings will be selected from a variety of prose genres ranging from fiction to journalistic writing.

EAST 577 Advanced Translation: Korean.
(3) (Prerequisite: EAST 420 or permission of instructor.) (Restriction: Departmental approval required) Translation of Korean texts into English or French. Materials will be selected from a variety of prose genres ranging from fiction to journalistic writing.

EAST 582 Japanese Culture and Society.
(3)

ECON-Economics

Offered by: Economics

ECON 199 FYS: Aspects of Globalization.
(3) (Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) (Maximum 25) A guided discussion of the many and varied aspects of economic globalization.

ECON 206 An Introduction to Political Economy.
(3) (Restriction: Not open to students who have taken ECON 205D1) (Restriction: This course does not count for credit towards the Minor Concentration, Major Concentration, or Honours degree in Economics.) A critical study of the insights to be gained through economic analysis of a number of problems of broad interest. The focus will be on the application of economics to issues of public policy.

ECON 208 Microeconomic Analysis and Applications.
(3) (Restriction: Not open to students who have taken or are taking ECON 230 or ECON 250) A university-level introduction to demand and supply, consumer behaviour, production theory, market structures and income distribution theory.

ECON 209 Macroeconomic Analysis and Applications.
(3) (Prerequisites: ECON 208 or permission of the instructor) (Restriction: Not open to students who have taken or are taking ECON 330 or ECON 392) A university-level introduction to national income determination, money and banking, inflation, unemployment and economic policy.

ECON 219 Current Economic Problems: Topics.
(3) (This course will also be of interest to students outside of Economics) This course will deal with topical issues of importance to the Canadian economy.

ECON 221 Economic History.
(3) (Corequisites: ECON 208 and ECON 209 or ECON 230D1/D2 or ECON 250D1/D2.) (Restrictions: Not open to students who have taken ECON 201 or ECON 221D1/D2.) Survey of economic development. The evolution of economic institutions and the process of economic growth. Topics include demographic change, agrarian institutions, financial and industrial organization, technological change and the expansion of trade and markets.

ECON 222 Economic Theory: Honours.
(6) (You may not be able to receive credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) Distributions, averages, dispersions, sampling, testing, estimation, correlation, regression, index numbers, trends and seasonals.

ECON 227D1, ECON 227D2 (3) Economic Statistics.
(Students must register for both ECON 227D1 and ECON 227D2.) (No credit will be given for this course unless both ECON 227D1 and ECON 227D2 are successfully completed in consecutive terms) The introductory course for Economics Major students who have taken ECON 201 or ECON 221D1/D2. A study of the application of economic theory to questions of environmental policy. Particular attention will be given to the measurement and regulation of pollution, congestion and waste and other environmental aspects of specific economies.

ECON 227 Economic Statistics.
(6) (You may not be able to receive credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) Distributions, averages, dispersions, sampling, testing, estimation, correlation, regression, index numbers, trends and seasonals.

ECON 230D1, ECON 230D2 (3) Microeconomic Theory.
(Students must register for both ECON 230D1 and ECON 230D2.) (No credit will be given for this course unless both ECON 230D1 and ECON 230D2 are successfully completed in consecutive terms) The introductory course for Economics Major students in microeconomic theory. In depth and critical presentation of the theory of consumer behaviour, theory of production and cost curves, theory of the firm, theory of distribution, welfare economics and the theory of general equilibrium.

ECON 250D1, ECON 250D2 (3) Introduction to Economic Theory: Honours.
(Prerequisites: MATH 140 and MATH 141 or equivalent) (Students must register for both ECON 250D1 and ECON 250D2.) (No credit will be given for this course unless both ECON 250D1 and ECON 250D2 are successfully completed in consecutive terms) An intermediate level microeconomics course. Includes theory of exchange, theory of consumer behaviour, theory of production and cost curves, theory of the firm, theory of distribution, welfare economics and the theory of general equilibrium.

ECON 257D1, ECON 257D2 (3) Economic Statistics - Honours.
(Students must register for both ECON 257D1 and ECON 257D2.) (No credit will be given for this course unless both ECON 257D1 and ECON 257D2 are successfully completed in consecutive terms) The introductory course for Economics Major students who have taken ECON 201 or ECON 221D1/D2. (Restrictions: Not open to students who have taken 154-325 or 154-425) A study of the application of economic theory to questions of environmental policy. Particular attention will be given to the measurement and regulation of pollution, congestion and waste and other environmental aspects of specific economies.

ECON 257D Economic Statistics.
(6) (You may not be able to receive credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) Distributions, averages, dispersions, sampling, testing, estimation, correlation, regression, index numbers, trends and seasonals.

ECON 227D1, ECON 227D2 (3) Economic Statistics.
(Students must register for both ECON 227D1 and ECON 227D2.) (No credit will be given for this course unless both ECON 227D1 and ECON 227D2 are successfully completed in consecutive terms) The introductory course for Economics Major students in microeconomic theory. In depth and critical presentation of the theory of consumer behaviour, theory of production and cost curves, theory of the firm, theory of distribution, welfare economics and the theory of general equilibrium.
Statistical inference about proportions, means and variances; analysis of variance; nonparametric statistics; index numbers and time series; economic forecasting; regression and correlation analysis; introduction to general linear models, its uses and limitations; uses and misuses of statistics.

**ECON 295 Macroeconomic Policy.**
(3) (Corequisite: MGCR 293) (Restriction: For B.Com. students) (Restriction: Not open to students who have taken or are taking ECON 330 or ECON 352) (Continuing Education: requirement for CMA, CGA, I.C.B., the EA of AACI, and the CRA) (Continuing Education: not open to full-time day students) This applied macroeconomics course focuses on current and recurrent macroeconomic issues important in understanding the public policy environment in which firms make their decisions. Topics include national accounts; national income determination; economic growth and fluctuations; money, monetary policy and financial markets; international trade and finance.

**ECON 302 Money, Banking & Government Policy.**
(3) (Prerequisites: ECON 208 and ECON 209) (Restriction: Not open to students who have taken ECON 302, ECON 302D1/D2) Analysis of the market for money; its macroeconomic effects; the theory and policy of central banking; monetary policy rules, the Taylor Rule; inflation targeting, quantitative easing; central bank independence; currency boards; commercial banking and economic stability; regulated versus free banking; cross-border banking and policy.

- **ECON 303 Canadian Economic Policy.**
  (3) (Prerequisites: ECON 208 and ECON 209 or those listed under Prerequisites above.) (Restriction: Not open to students who have taken ECON 303D1/D2 or ECON 403.) Major theories of how economic policy is made and goes on to use economic tools of analysis to investigate selected policy problems of current interest.

- **ECON 304 Financial Instruments & Institutions.**
  (3) (Prerequisites: ECON 208 and ECON 209) (Restriction: Not open to students who have taken ECON 302, ECON 302D1/D2) Economic analysis of initiating, assembling, pricing and marketing equities of bonds, bills and complex financial instruments; financial innovation; its implications for financial stability and market failure; banks as brokers, underwriters, market makers and international allocators of credit; strategies of private and public agents operating in financial markets, monetary history.

- **ECON 305 Industrial Organization.**
  (3) (Prerequisites: ECON 208 and ECON 209 or those listed under Prerequisites above) (Restriction: Not open to students who have taken ECON 305) The course analyzes the structure, conduct, and performance of industries, particularly but not exclusively in Canada. Topics include effects of mergers, barriers to entry, product line and promotion policies, vertical integration, and R & D policies of firms.

- **ECON 306 Labour Markets and Wages.**
  (3) (Prerequisites: ECON 208 and ECON 209, or ECON 230D1/D2, or ECON 250D1/D2) (Restriction: Not open to students who have taken ECON 230D1/D2) Examination of the implications on wage structures of differences in job conditions, levels and type training, long-term employment relationships, unionization etc. A variety of socioeconomic policy issues including subsidies for higher education, government regulation of workplace safety, and the role and treatment of women in today's labour force are explored.

**ECON 308 Governmental Policy Towards Business.**
(3) (Prerequisites: ECON 208 and ECON 209 or those listed under Prerequisites above) (Restriction: Not open to students who have taken 154-305D) Covers the major public policies toward business in Canada, such as competition policy, regulation, public ownership and privatization, industrial policies, and trade policies. Includes comparison with policies of other countries, especially the U.S. Readings will include some legal decisions.

- **ECON 310 Introduction to Behavioural Economics.**
  (3) (Prerequisites: ECON 208 and a statistics course or permission of the instructor.) An introduction to economic decision-making in markets and strategic environments, including bounded rationality, individual decision-making under uncertainty, and behavioural game theory.

- **ECON 311 United States Economic Development.**
  (3) (Prerequisites: ECON 208 and ECON 209 or those listed under Prerequisites above) A survey of economic growth and institutional change in the United States. Emphasis will be placed on the use of analytical methods and categories and theories economists have developed for such studies.

- **ECON 313 Economic Development 1.**
  (3) (Prerequisite: ECON 208 and either ECON 209 or one development course.) (Restriction: Not open to students who have taken 154-313D.) Microeconomic theories of economic development and empirical evidence on population, labour, firms, poverty. Inequality and environment.

- **ECON 314 Economic Development 2.**
  (3) (Prerequisite: ECON 313) (Restriction: Not open to students who have taken 154-313D) Macroeconomic development issues, including theories of growth, public finance, debt, currency crises, corruption, structural adjustment, democracy and global economic organization.

- **ECON 316 The Underground Economy.**
  (3) (Prerequisites: ECON 208 and ECON 209 or those listed under Prerequisites above) The origins, structure and operation of the "underground" sectors of modern economies around the world. Topics include the causes of black marketeering in Western economies; international contraband trade in guns and drugs; money laundering through the world financial system.

- **ECON 318 The Criminal Economy.**
  (3) (Prerequisite: ECON 316.) (Restriction: Departmental approval required) A seminar course focusing on the nature and operation of criminal enterprise in markets for goods, services and factors of production within advanced industrial economies. Topics include the debate over "organized" crime; the structure of the criminal firm; labour racketeering; and crime in the money and capital markets.

- **ECON 319 Economic Crises.**
  (3) (Prerequisite(s): ECON 208 and ECON 209) Review of economic knowledge on the causes and consequences of financial and economic crises such as that which began in August 2007.

- **ECON 326 Ecological Economics.**
  (3) (Prerequisites: ECON 208 and ECON 209 or consent of instructor) Macroeconomic and structural aspects of the ecological crisis. A course in which subjects discussed include the conflict between economic growth and the laws of thermodynamics; the search for alternative economic indicators; the fossil fuels crisis; and "green" fiscal policy.

- **ECON 330D1, ECON 330D2 (3) Macroeconomic Theory.**
  (Prerequisite: ECON 230 or ECON 250. If a student has already taken 154-200 or 154-203 and 154-204 or ECON 208 and ECON 209, it may be concurrently taken with ECON 230 with the permission of the instructor) (Students must register for both ECON 330D1 and ECON 330D2.) (No credit will be awarded for both courses.)

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* Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
* Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
* Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
given for this course unless both ECON 330D1 and ECON 330D2 are successfully completed in consecutive terms.) A review of basic economic concepts and tools with an in-depth and critical presentation of the fundamental areas of macroeconomic theory. Topics include: the determination of output, employment and price level; money and banking and business cycles; stabilization policy; international finance and growth theory.

- **ECON 331 Economic Development: Russia and USSR. (3) (Prerequisites: ECON 208 and ECON 209 or those listed under Prerequisites above) Introduction to Russian and former Soviet economic development, structure, planning, management and performance. The former Soviet economy, attempted reforms, and the collapse of the U.S.S.R.

- **ECON 334 History of Economic Doctrines. (3) (Prerequisites: ECON 208 and ECON 209 or those listed under Prerequisites above) The course surveys the development of economics, how the discipline and the thinking of economists evolved, and the significance of some of the analytical tools used.

- **ECON 335 The Japanese Economy. (3) (Prerequisites: ECON 208 and ECON 209 or those listed under Prerequisites above) The first part of the course covers the economic institutions in, changing structure of, and public policies employed by the Japanese economy. The second part probes the economic "logic" of the Japanese capitalist system, explores its relationship to the ideas of Joseph Schumpeter, and makes comparisons with the American economy.

- **ECON 336 The Chinese Economy. (3) (Prerequisites: ECON 208 and ECON 209, or ECON 230D1/D2 or 250D1/D2).) Examination of the growth and transformation of the Chinese economy and the domestic and international implications.

- **ECON 337 Introductory Econometrics 1. (3) (Prerequisite: a grade of 65% or better in ECON 227 or ECON 257 or an equivalent qualification in statistics. Familiarity with matrix algebra is highly recommended.) The practical application of quantitative methods in statistical investigations.

- **ECON 338 Introductory Econometrics 2. (3) (Prerequisite: ECON 337) Estimation and forecasting using simultaneous equation systems, dynamic simulation, time series analysis.

- **ECON 341 Economic History of a World Area. (3) (Prerequisites: ECON 208 and ECON 209 or those listed under Prerequisites above) Examination of the processes of economic growth and industrialization in Europe and their effect on the development of the world economy. Particular emphasis is placed on the economic history of major European nations and their overseas extensions. Topics include technological change, the demographic transition and the gold standard.

- **ECON 345 The International Economy since 1914. (3) (Prerequisites: ECON 208 and ECON 209, or MGCR 293 and ECON 295, or ECON 230D1/D2, or ECON 250D1/D2) Studies the history of economic adjustments in the 20th century, with particular reference to the industrialized countries. Topics include: the economic impact of WWI, the attempts to revive the international economy in the 1920s, the causes and consequences of the Great Depression of the 1930s, and the economic problems and subsequent economic boom following WWII.

- **ECON 347 Economics of Climate Change. (3) (Prerequisites: ECON 208 and ECON 209 or those listed under Prerequisites above) The course focuses on the economic implications of, and problems posed by, predictions of global warming due to anthropogenic emissions of greenhouse gases. Attention is given to economic policies such as carbon taxes and tradable emission permits and to the problems of displacing fossil fuels with new energy technologies.

- **ECON 348 Urban Economics. (3) (Prerequisite: ECON 208.) Economic explanations for the rise of cities; their economic benefits and externalities. Economic challenges to cities in the modern context. Examination of municipal policies and of economic, legal and political constraints on cities.

- **ECON 352D1 (3), ECON 352D2 (3) Macroeconomics - Honours. (Prerequisite: ECON 250D1/ECON 250D2) (Corequisite: ECON 257D1) (Students must register for both ECON 352D1 and ECON 352D2) (No credit will be given for this course unless both ECON 352D1 and ECON 352D2 are successfully completed in consecutive terms) Basic macroeconomics theory, emphasizing the Classical and Keynesian ideas for the short-run determination of output, employment, interest rates and prices in the economy. Elements of international economics, money and banking and growth theory. The structure of the Canadian economy.

- **ECON 399 Internship: Economics. (3) (Restriction: Open to U2 and U3 students with a minimum CGPA of 3.0 and permission of the departmental Internship Advisor. This course will not normally fulfill program requirements for honours, major or minor programs. A letter from a supervisor at the institution must attest to the successful completion of the student's tenor. The topic must fall within the student's program in economics and have the prior approval of a faculty member in the department.) Internship with an approved host institution or organization.

- **ECON 405 Natural Resource Economics. (3) (Prerequisite: ECON 230 or ECON 250) Topics include: Malthusian and Ricardian Scarcity; optimal depletion of renewable and non-renewable resources; exploration, risk and industry structure, and current resources, rent and taxation. Current public policies applied to the resource industries, particularly those of a regulatory nature.

- **ECON 406 Topics in Economic Policy. (3) (Prerequisites: ECON 230 or ECON 250 and one of ECON 227, ECON 257) Selected policy issues are investigated using economic theory. For details on topics covered in the current year, consult the instructor.

- **ECON 408 Public Sector Economics 1. (3) (Prerequisite: ECON 230D1/D2 or 250D1/D2 or permission of the instructor.) Not open to students who have already completed ECON 408D1/D2.) Theoretical and empirical economic analysis of the public sector with an emphasis on public goods and government spending. Study of Canadian institutions in international perspective.

- **ECON 409 Public Sector Economics 2. (3) (Prerequisite: ECON 408 or permission of the instructor) (Restriction: Not open to students who have taken ECON 408D1/D2) Theoretical and empirical economic analysis of the public sector with an emphasis on taxation. Study of Canadian institutions in international perspective.

- **ECON 411 Economic Development: A World Area. (3) (Prerequisites: ECON 230 or ECON 250 and one semester of economic development) An advanced course in the economic development of a pre-designated underdeveloped country or a group of countries.

- **ECON 416 Topics in Economic Development 2. (3) (Prerequisite: ECON 230 or ECON 250 or permission of the instructor) This course gives students a broad overview of the economics of developing countries. The course covers micro and macro topics, with particular emphasis on the economic analysis at the micro level.

- **ECON 420 Topics in Economic Theory. (3) (Prerequisite: ECON 230 or ECON 250) The course discusses selected topics in micro or macroeconomic theory at an advanced level. Possible topics include welfare economics, general equilibrium, theories of firms, consumer behaviour, intertemporal choice, uncertainty, game theory, etc.
ECON 423 International Trade.
(3) (Prerequisite: ECON 230D1/D2 or ECON 250D1/D2) (Restriction: Not open to students who have taken ECON 423D1/D2) A review of the theory and policy of international trade. Topics examined include: classical and modern theories of trade; tariffs; labour and capital mobility; trade and development; the WTO.

ECON 424 International Payments.
(3) (Prerequisite: ECON 230D1/D2 or ECON 250D1/D2) (Corequisite: ECON 330D1 or ECON 352D1) (Restriction: Not open to students who have taken ECON 423D1/D2) A review of the theory and policy of international financial relations. Topics examined include: the balance of payments; exchange rates; global capital markets; the international monetary system.

ECON 426 Labour Economics.
(3) (Prerequisite: ECON 230D1/D2 or ECON 250D1/D2 or ECON 306D1/D2) The determinants of labour supply, demand and the structure of earnings are considered. The economic effects of government policies, such as minimum wage laws, unemployment insurance, welfare and training programs and subsidies to higher education are analyzed. A rigorous theoretical and "hands on" empirical approach is emphasized.

ECON 434 Current Economic Problems.
(3) (Prerequisite: ECON 230 or ECON 250.) (Corequisite: ECON 330 or ECON 352) A discussion of contemporary economic problems. Topics will reflect economic issues of current interest.

ECON 440 Health Economics.
(3) (Prerequisites: ECON 208 and ECON 227 or comparable courses or consent of the instructor) The organization and performance of Canada's health care system are examined from an economist's perspective. The system is described and its special features analyzed. Much attention is given to the role of government in the system and to financing arrangements for hospital and medical services. Current financial problems are discussed.

ECON 447 Economics of Information and Uncertainty.
(3) (Prerequisite: ECON 230 or ECON 250) This course considers how uncertainty can be incorporated into the standard model of consumer and producer choice central to explaining or analysing a number of different economic phenomena. Topics include the information approach to explaining unemployment and problems in controlling health care costs.

ECON 450D1 (3), ECON 450D2 (3) Advanced Economic Theory - Honours.
(Prerequisites: ECON 250D1/ECON 250D2 and ECON 352D1/ECON 352D2) (Students must register for both ECON 450D1 and ECON 450D2.) (No credit will be given for this course unless both ECON 450D1 and ECON 450D2 are successfully completed in consecutive terms) Selected topics in economic theory from recent periodical and monograph literature.

ECON 451 Seminar in Economic History.
(3) (Prerequisites: one of ECON 227, ECON 317, ECON 257 or ECON 357 and either ECON 330 or ECON 352) In this course economic theory is explicitly employed to elucidate issues in economic history. The topics will be announced at the beginning of the academic year.

ECON 453 International Trade - Honours.
(3) (Prerequisite: ECON 250D1/D2) (Restriction: Not open to students who have taken ECON 453D1/D2) Economic theories (classical and 'new trade theories') that analyze the impact of trade between nations are presented. In addition to the economic analysis of trade policies other topics such as trade in cultural goods, multilateral trade agreements, free trade and the environment may be covered.

ECON 454 Open Economy Macroeconomics - Honours.
(3) (Prerequisite: ECON 250D1/D2) (Restriction: Not open to students who have taken ECON 453D1/D2) This course examines major theoretical and policy issues in open-economy macroeconomics. Topics include exchange rate adjustments, currency crises, the current accounts, global imbalance, and related issues. Empirical studies will also be discussed.

ECON 459 Topics in Monetary Economics - Honours.
(3) (Prerequisite: ECON 230 or ECON 250, and knowledge of calculus.) (Restriction: For Honours in Economics) (Restriction: Not open to students who have taken ECON 458) An advanced treatment of selected topics in monetary economics, including the theory and practice of monetary policy.

ECON 460 History of Thought 1 - Honours.
(3) (Prerequisite: ECON 250.) (Corequisite: ECON 352) The evolution of economic thought prior to the close of the 19th century, as reflected in the writings of prominent economists from the time of Adam Smith to the emergence of marginalism and neoclassical economics.

ECON 461 History of Thought 2 - Honours.
(3) (Prerequisite: ECON 250.) (Corequisite: ECON 352) The evolution of economic thought in the 20th century, as reflected in the writings of prominent economists on equilibrium, dynamics, games, expectations, econometrics, industrial structure, economic policy and other primary areas of interest.

ECON 468 Econometrics 1 - Honours.
(3) (Prerequisite(s): ECON 257D1/D2 or permission of the instructor.) (Restriction(s): Not open to students who have taken or are taking ECON 467D1/D2) The statistical basis of econometric modelling and treatment of the linear regression model; simple time series models; procedures for inference in linear cases; an introduction to methods for dealing with endogeneity and non-constant variance.

ECON 469 Econometrics 2 - Honours.
(3) (Prerequisite: ECON 468) (Restriction(s): Not open to students who have taken or are taking ECON 467D1/D2) Treatment of asymptotic theory and classical inferential procedures, an introduction to the bootstrap, maximum likelihood, non-linear models, mis-specification testing, non-stationarity and limited dependent variable models.

ECON 473 Income Distribution.
(3) (Prerequisite: ECON 230 or ECON 250. Equivalent of a full year course in statistics as the requirement applicable to Majors and Honours in economics, and calculus 1 and 2) Theory and measurement of income distribution, disparities and poverty. The course examines intertemporal dynamics affecting individuals and socioeconomic groups. The incidence of (costs and benefits from) fiscal and restrictive programmes, inflation and unemployment is evaluated.

ECON 480 Research Project.
(3) (Restrictions: Open to U3 students only. Students must complete a Research Project Registration Form, have it signed by the professor who has agreed to supervise the research project, countersigned by an adviser, and submit it to the Department Office in Leacock 443 prior to registering in this course. A student cannot take this course more than once for credit.) In this course students must undertake a research project under close supervision. They must also do such special reading and research as their advisers direct.

ECON 481 Research Project.
(3) (Restrictions: Open to U3 students only. Students must complete a Research Project Registration Form, have it signed by the professor who has agreed to supervise the research project, countersigned by an adviser, and submit it to the Department Office in Leacock 443 prior to registering in this course. A research as their advisers direct.

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‡ Professional Practice (Stage) in Dietetics involving special prerequisites.
● Indicates that departmental approval/permission must be obtained by a student prior to registration.
† Denotes courses not available as Education electives.
▲ Denotes courses with limited enrolment.
★ Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
† Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
✱ Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
student cannot take this course more than once for credit.) In this course students must undertake a research project under close supervision. They must also do such special reading and research as their advisers direct.

**ECON 510 Experimental Economics.**
(3) (Prerequisites: ECON 230 or ECON 250 or permission of the instructor.) (Restrictions: For U3 students.) Experimental methodology, current topics in experimental economics, and market design.

**ECON 525 Project Analysis.**
(3) (Restriction: Open to advanced undergraduate students. Prerequisite: ECON 250, ECON 352 or equivalent) A course in cost benefit analysis for graduate and advanced undergraduate students.

**ECON 531 Historical Experience of Economic Development.**
(3) (Prerequisite: ECON 230 or ECON 250 or equivalent.) Examination of historical patterns of economic development.

**ECON 546 Game Theory.**
(3) (Prerequisite: ECON 230 or ECON 250) (Restriction: Not open to students who have taken ECON 446. Open to advanced undergraduate students) This course introduces students to game theory, the branch of the social sciences that focuses on the formal modelling and analysis of human interactions and strategic behaviour. Basic concepts in cooperative and non-cooperative games are applied to economic models.

**ECON 577 Mathematical Economics 1.**
(3) (Prerequisites: MATH 133, MATH 139 and MATH 141 or equivalent) A mathematical treatment of basic economic theory.

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**ENGL-English**

**Offered by:** English

**ENGL 100 English Literature and Composition.**
(6) (Restriction: Course is open to Inuit students only.)

**ENGL 100D1 (3), ENGL 100D2 (3) English Literature and Composition.**
(Students must register for both ENGL 100D1 and ENGL 100D2.) (No credit will be given for this course unless both ENGL 100D1 and ENGL 100D2 are successfully completed in consecutive terms) (ENGL 100D1 and ENGL 100D2 together are equivalent to ENGL 100)

**ENGL 199 FYS: Literature and Democracy.**
(3) (Winter) (Restriction: Open only to newly admitted students in U0 or U1. Students may take only one First Year Seminar. Students who register for more than one will be removed from all but one of them.) (Maximum enrolment: 25)

**ENGL 200 Survey of English Literature 1.**
(3) (Fall) (Restriction: Not open to students in English programs)

**ENGL 201 Survey of English Literature 2.**
(3) (Winter) (Prerequisite: ENGL 200 or permission of instructor) (Restriction: Not open to students in English programs)

**ENGL 202 Departmental Survey of English Literature 1.**
(3) (Fall) (Restriction: Limited to students in English programs only) (Restriction: Not open to students who have taken ENGL 200)

**ENGL 203 Departmental Survey of English Literature 2.**
(3) (Winter) (Prerequisite: ENGL 202 or permission of instructor) (Restriction: Limited to students in English programs only) (Restriction: Not open to students who have taken ENGL 201)

**ENGL 204 English Literature and the Bible.**
(3) (Fall) This course will examine the literary dimensions of the Bible including structure, style, and meaning as well as its status as Sacred Book. The influence of the Bible-as-metatext on the secular literature of the West will be the focus of the discussion.

**ENGL 215 Introduction to Shakespeare.**
(3) (Winter) A study of a selection of plays, in their intellectual and theatrical context, with an emphasis on the interplay of text and performance.

**ENGL 225 American Literature 1.**
(3) (Fall) A study of the literary works of earlier American writers.

**ENGL 226 American Literature 2.**
(3) (Winter) A study of the literary works of later American writers.

**ENGL 227 American Literature 3.**
(3) A study of literary works which may be thematic or may deal with a special group of authors.

**ENGL 228 Canadian Literature 1.**
(3) (Fall) A chronological survey of Canadian literature, Part 1.

**ENGL 229 Canadian Literature 2.**

**ENGL 230 Introduction to Theatre Studies.**
(3) (Fall) An introduction to dramatic literature, text analysis, textual and performance theory, and theatre history.

**ENGL 237 Introduction to Study of a Literary Form.**
(3) (Winter) An introduction to literary study through a survey of a literary genre, mode, or form.

**ENGL 269 Introduction to Performance.**
(3) (Winter) (Restriction: Permission of instructor required.) (Open to Drama and Theatre Majors) The focus of this course is on the actor as communicator, and on those things (material, physical, and textual) which are inescapably central to the theatrical performance.

**ENGL 275 Introduction to Cultural Studies.**
(3) (Fall) (Required of all U1 Cultural Studies students) A survey of cultural studies, its history and subject matter, presenting key interpretive and analytic concepts, the aesthetic and political issues involved in the construction of sign systems, definitions of culture and cultural values conceptualized both as a way of life and as a set of actual practices and products.

**ENGL 276 Methods of Cultural Analysis.**
(3) (Winter) (Prerequisite: ENGL 275) A study of basic methodologies found in cultural studies, such as forms of historicism, Marxism, psychoanalysis, philosophical materialism, feminism, gender theory. Topics such as aesthetics and film theory, authorship and spectatorship, modernism and postmodernism will be considered. Examples to be drawn from film, television, popular culture, and traditional literature.

**ENGL 277 Introduction to Film Studies.**
(3) (Fall) (Restriction: Cultural Studies Major and Honours program students.) An introduction to key concepts in film studies. Exemplary works from the history of film will be studied to introduce students to such topics as the aesthetics of film; sound's production of meaning; film as narrative; film and genre; period and national cinemas; film's role in culture.

**ENGL 279 Introduction to Film as Art.**
(3) An introduction to film aesthetics, with emphasis on narrative, style and genre throughout the history of cinema.

**ENGL 280 Introduction to Film as Mass Medium.**
(3) (Students will be required to pay a screening fee.) An introduction to film's social, historical, and technological contexts, including its relationships to other mass media.

**ENGL 297 Special Topics of Literary Study.**
(3) .

**ENGL 301 Earlier 18th Century Novel.**
(3) (Fall) Study of the English novel to c. 1750.

**ENGL 302 Restoration and 18th C. English Literature 1.**
(3) (Winter) A study of the major writers of the late 17th and earlier 18th centuries.

**ENGL 303 Restoration and 18th C. English Literature 2.**
(3) A study of the major writers of the later 18th century.
ENGL 304 Later Eighteenth Century Novel.  
(3) (Winter)  
• ENGL 305 Renaissance English Literature 1.  
(3) (Winter) A study of major non-dramatic works of the earlier Renaissance in England.  
• ENGL 306 Theatre History: Medieval and Early Modern.  
(3) A survey of the dramatic forms and theatrical practices of late medieval and early modern theatre.  
ENGL 307 Renaissance English Literature 2.  
(3) (Winter) A study of major non-dramatic works of the later Renaissance in England.  
ENGL 308 English Renaissance Drama 1.  
(3) (Winter) An overview of some major authors and issues in English Renaissance Drama.  
ENGL 309 English Renaissance Drama 2.  
(3) (Winter) An overview of some major authors and issues in English Renaissance Drama.  
ENGL 310 Restoration and 18th Century Drama.  
(3) (Fall)  
ENGL 311 Poetics.  
(3) (Fall) (Restriction: Limited to students in English Major Concentration, Literature Option.) Discussion and application of basic critical tools for analysis of literature. Study of such features of poetry and prose fiction as prosody, diction, voice, tone, imagery, figurative language, point of view, narrative form, and character.  
ENGL 313 Canadian Drama and Theatre.  
(3) (Winter) Dramatic forms and theatrical practices in Canada from beginnings to the present day.  
ENGL 314 20th Century Drama.  
(3) (Winter) A study of selected representative works in modern drama and theatre.  
ENGL 315 Shakespeare.  
(3) (Fall) A study of the major works of Shakespeare.  
ENGL 316 Milton.  
(3) (Fall)  
• ENGL 317 Theory of English Studies 1.  
(3) (Fall) (Restriction: Limited to students in English Major and Honours Programs) Philosophical approaches.  
• ENGL 318 Theory of English Studies 2.  
(3) (Fall) (Restriction: Limited to students in English Major and Honours Programs) Socio-Historical approaches.  
ENGL 319 Theory of English Studies 3.  
(3) (Winter) (Restriction: Limited to students in English Major and Honours Programs) Issues in interpretation: authorship, performance, reception.  
• ENGL 320 Postcolonial Literature.  
(3) (Fall)  
• ENGL 321 Caribbean Fiction.  
(3)  
• ENGL 322 Theories of the Text.  
(3) (Fall) (Restriction: Limited to students in English Major and Honours Programs) A course focusing on textuality (as opposed to, say, intentionality and interpretation) and on how specific effects are made - how texts work and produce meaning, including rhetoric and form.  
• ENGL 323 20th Century American Poetry.  
(3) (Fall)  
ENGL 324 20th Century American Prose.  
(3) (Winter)  
• ENGL 325 Modern American Fiction.  
(3)  
ENGL 326 19th Century American Prose.  
(3) (Fall) A study of some of the major prose writers of the 19th Century.  
* • ENGL 327 Canadian Prose Fiction 1.  
(3) (Fall) A survey of Canadian prose fiction in English, from 19th century historical romance and realist fiction to the emergence of the modernist novel in the decades following the Second World War.  
*ENGL 328 Development of Canadian Poetry 1.  
(3) (Winter) A survey of Canadian poetry in English from the 18th century to the end of the Second World War.  
ENGL 329 English Novel: 19th Century 1.  
(3) (Winter) A study of representative novelists of the earlier 19th century.  
• ENGL 330 English Novel: 19th Century 2.  
(3) (Fall) A study of representative novelists of the later 19th century.  
* • ENGL 331 Literature Romantic Period 1.  
(3) (Fall) A survey of representative literature of the earlier Romantic period.  
* • ENGL 332 Literature Romantic Period 2.  
(3) (Winter) A survey of representative literature of the later Romantic period.  
*ENGL 333 Development of Canadian Poetry 2.  
(3) (Fall) A survey of Canadian poetry in English from the end of the Second World War to the present.  
• ENGL 334 Victorian Poetry.  
(3) (Winter) A study of the major Victorian poets.  
• ENGL 335 The 20th Century Novel 1.  
(3) (Fall) The Novel from the last years of the 19th century to World War II.  
ENGL 336 The 20th Century Novel 2.  
(3) (Fall)  
* • ENGL 337 Theme or Genre in Medieval Literature.  
(3) Study of a particular theme or genre of significance to the development of medieval literature.  
• ENGL 338 Short Story.  
(3)  
* • ENGL 339 Canadian Prose Fiction 2.  
(3) A survey of contemporary Canadian prose fiction in English, from modernism to post-modernism and beyond.  
• ENGL 340 History of the English Language.  
(3)  
• ENGL 341 Canadian Radio and Television.  
(3) Histories of Canadian radio and television, with attention to the aesthetic, semiotic and generic developments of public and private broadcasting and cable channels, as well as aboriginal and multi-ethnic broadcasting.  
• ENGL 342 Introduction to Old English.  
(3) (Fall) (Restriction: Not open to students who have taken ENGL 351.) An introduction to grammar and basic vocabulary in Old English.  
• ENGL 343 Literature and Science 1.  
(3) (Fall)  
• ENGL 345 Literature and Society.  
(3) An examination of issues relating to literature and its social contexts, such as implications of gender, race, ethnicity.  

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❉ Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.

2011-2012 Undergraduate Programs, McGill University C-47
ENGL 346 Materiality and Sociology of Text.  
(3) (Winter) (Restriction: Limited to students in English Major and Honours Programs.) Writing, printing, distribution, marketing, and placement within canon-making institutions; the influence of material forms of production and transmission on the creation and reception of literature, film, and theatre.

ENGL 347 Great Writings of Europe 1.  
(3) (Fall) A study of selected texts that significantly enhance understanding of English literature.

ENGL 348 Great Writings of Europe 2.  
(3) (Winter) A study of selected texts that significantly enhance understanding of English literature.

● ENGL 349 English Literature and Folklore 1.  
(3) (Winter) A study of representative texts from Beowulf to the late Renaissance period in relation to their background in folk tradition. A focus on the origin and development of folklore motifs.

● ENGL 350 Studies in the History of Film 1.  
(3) Developments in proto-cinema and early cinema through the silent era.

ENGL 351 Studies in the History of Film 2.  
(3) (Winter) Developments in the Hollywood Studio Era, including rivals, imitators, and alternatives.

● ENGL 352 Theories of Difference.  
(3) (Winter) (Restriction: Limited to students in English Major and Honours Programs.) Introduction to a selection of theories that have influenced thinking about difference across the humanities and social sciences, including gender, sexuality, race, class and hierarchical structures, language, religion, ethnicity, and personal identity.

● ENGL 353 Interdisciplinary Approaches to Literary Research.  
(3) (Priority will be given to English Major/Honours students in second year of program) Examination of interdisciplinary connections between literary criticism and another discipline, such as anthropology, linguistics, history, philosophy or psychology, which has had significant impact on literary study.

ENGL 354 Sexuality and Representation.  
(3) (Fall) (Priority will be given to English Major/Honours students in second year of program) Topics on representations of sexuality with reference to its cultural contexts.

ENGL 355 The Poetics of Performance.  
(3) (Fall) (Restriction: Limited to students in the English Major Concentration, Drama and Theatre Option) This course, normally taken in tandem with ENGL 230, examines and tests theories of acting, directing, and design through scene work and practical exercises.

ENGL 356 Middle English.  
(3) (Fall)

★ • ENGL 357 Chaucer - Canterbury Tales.  
(3) (Winter)

★ENGL 358 Chaucer - Troilus and Criseyde.  
(3) (Fall)

ENGL 359 The Poetics of the Image.  
(3) (Winter) (Restriction: Limited to students in the English Major Concentration, Cultural Studies Option) This course, normally taken in tandem with ENGL 275, examines contemporary debates about the aesthetic dimensions as well as social roles of pictorial, theatrical, cinematic, and other representations, the meanings, effects, and aesthetic significance of which depend on their having visually recognizable features.

ENGL 360 Literary Criticism.  
(3) (Winter) (Prerequisite: at least 3 credits of ENGL 200, ENGL 201, ENGL 202, ENGL 203. Pre-/Co-requisite: ENGL 311. Required for but not restricted to Literature Honours students) Principles of literary criticism.

● ENGL 361 Poetry of the 20th Century 1.  
(3) (Fall) A critical survey of major British and North American poetry, c. 1890 - 1940.

● ENGL 362 Poetry of the 20th Century 2.  
(3) (Prerequisite: ENGL 311) A critical survey of contemporary British and North American poetry, c. 1930 - 1980.

● ENGL 363 Studies in the History of Film 3.  
(3) Developments in post-1958 cinema, from the European New Waves to contemporary global and independent cinemas.

● ENGL 364 Creative Writing: Fiction 2.  
(3) (Restriction: Permission of instructor required.) Advanced seminar on writing prose fiction; admission subject to application, with writing sample.

ENGL 365 Costuming for the Theatre 1.  
(3) (Fall) (Restriction: Permission of instructor required.) (Restriction: Not open to students enrolled in ENGL 368) Introduction to costume-making for the theatre, covering fabrics, textiles and costume decoration.

ENGL 366 Film Genre.  
(3) (Winter) A discussion of an individual genre of cinema; concept of genre.

ENGL 367 Acting 2.  
(3) (Fall) (Prerequisite: ENGL 269 and permission of instructor.) (Restriction: Not open to students who have taken 110-469D) The actor as analyzer of scripts and characters; textual analysis, practice in character development through improvisations, mask work and physical training.

ENGL 368 Stage Scenery and Lighting 1.  
(3) (Fall) (Restriction: Permission of instructor required.) (Restriction: Not open to students enrolled in ENGL 365) An introduction to the technical aspects of stage settings and theatrical lighting.

● ENGL 369 Creative Writing: Playwriting.  
(3) (Restriction: Permission of instructor required.)

ENGL 370 Theatre History: The Long Eighteenth Century.  
(3) (Fall) A survey of dramatic forms and genres and theatrical practices from the Restoration through the 18th century to the Romantic period.

● ENGL 371 Theatre History: 19th to 21st Centuries.  
(3) (Winter) History of predominantly Western theatre practices from circa 1830 to the present.

ENGL 372 Stage Scenery and Lighting 2.  
(3) (Winter) (Restriction: Not open to students enrolled in ENGL 377.)

● ENGL 373 Voice and Speech 2.  
(3)

● ENGL 374 Film Movement or Period.  
(3) Study of a significant movement or period in film history.

ENGL 375 Interpretation Dramatic Text.  
(3) (Fall) (Prerequisites: ENGL 230 and ENGL 269 or permission of the instructor) A study of the dramatic text as literature, and as a basis for theatre production. Emphasis on character and character development, on structure and motivational units, and on the visualization of the play in performance.

● ENGL 376 Scene Study.  
(3)

ENGL 377 Costuming for the Theatre 2.  
(3) (Winter) (Prerequisite: permission of instructor.) (Restriction: Not open to students enrolled in ENGL 372.) Advanced topics in costume-making for the theatre, including millinery, dyeing, costume breakdown, and silk painting techniques.

ENGL 378 Media and Culture.  
(3) (Fall) (Prerequisite: ENGL 275) An introduction to the study of television and its distinctive aesthetic, generic, and discursive features.

● ENGL 379 Film Theory.  
(3) (Fall) Introduction to major schools in the historical development and current practice of film theory.

● ENGL 380 Non-Fic Media: Cinema, Television, Radio  
(3) (Historical, formal, and thematic analysis of non-fictional and documentary works within cinema, television, and radio.

ENGL 381 A Film-Maker 1.  
(3) (Winter) (Restriction: Limited to students in English Major programs) Introduction to the works, career, and legacy of a notable film-maker.
ENGL 382 International Cinema 1.  
(3) A study of a significant national cinema, or a thematic, formal, and/or historical study of film in an international context.

ENGL 383 Studies in Communications 1.  
(3) (Fall) (Restriction: Permission of instructor required) Studies in the relationships between the media and culture.

ENGL 384 Semiotics of Advertising.  
(3) Semiotic analysis of the ways in which advertisements mean and work. Relevant theories include those of de Saussure, Peirce, Eco, Barthes, and Freud.

ENGL 385 Topics in Literature and Film.  
(3) (Winter).

ENGL 386 Fans, Celebrities, Audiences.  
(3) (Fall) A study of celebrity, audience behaviour, and fan culture, including the symbolic function of the celebrity, the celebrity as 'text', and the interaction of fandom with the production of conventions and meaning in popular cultural forms.

ENGL 388 Studies in Popular Culture.  
(3) (Winter) History and development of important forms of popular culture. Topics may include traditional ballads; fairs; carnivals and popular festivity; material culture; popular fiction; mainstream television.

ENGL 389 Studies in Popular Culture.  
(3) (Fall) History and development of important forms of popular culture.

ENGL 390 Political and Cultural Theory.  
(3) The intersection between theories of culture and theories of society.

ENGL 391 Special Topics: Cultural Studies 1.  
(3) (Fall) Current issues in cultural studies. Topics will include contemporary debates on high culture and the literary canon, and the question of aesthetic value and aesthetic judgment.

ENGL 393 Canadian Cinema.  
(3) (Fall) An examination of major developments in the history of cinema in Canada.

ENGL 394 Popular Literary Forms.  
(3) A popular literary author or genre, such as the romance novel, science fiction, the graphic novel, or cyberpunk.

ENGL 395 Cultural and Theatre Studies.  
(3) (Prerequisite: ENGL 275) The relationships between theatre and forms of popular culture, including but not limited to cinematic and televisial adaptations of theatrical works.

ENGL 397 Feminist Approaches to Cultural Studies.  
(3) (Winter) Intensive study of a writer important for Modernism, such as James Joyce, T.S. Eliot, Ezra Pound, Gertrude Stein.

ENGL 410 Theme or Movement Canadian Literature.  
(3) (Fall) (Restriction: Not open to students who have taken ENGL 440 First Nations and Inuit Literature and Media.) Advanced study of a significant theme or movement in Canadian literature.

ENGL 411 Studies in Canadian Fiction.  
(3) (Fall) (Prerequisite: Permission of instructor, based on previous work in Canadian fiction) Advanced study of works of Canadian fiction.

ENGL 413 Special Topics in Canadian Drama and Theatre.  
(3) (Prerequisite: Students not registered in English programs require permission of instructor.) Advanced study focused on a period or issue in Canadian drama and/or theatre history.

ENGL 414 Studies in 20th Century Literature 1.  
(3) (Fall)

ENGL 415 Studies in 20th Century Literature 2.  
(3) (Fall)

ENGL 416 Studies in Shakespeare.  
(3) (Winter)

ENGL 417 A Major English Poet.  
(3) (Winter)

ENGL 418 A Major Modernist Writer.  
(3) (Winter) Intensive study of a writer important for Modernism, such as James Joyce, T.S. Eliot, Ezra Pound, Gertrude Stein.

ENGL 419 Studies in 20th Century Literature.  
(3) (Fall)

ENGL 421 African Literature.  
(3) (Winter)

ENGL 422 Studies in 19th Century American Literature.  
(3) (Winter)

ENGL 423 Studies in 19th Century Literature.  
(3) (Winter) (Whitman, Dickinson, Melville's Moby Dick, and Others)

ENGL 424 Irish Literature.  
(3) (Fall)

ENGL 430 Studies in Drama.  
(3) (Fall)

ENGL 431 Studies in Drama.  
(3) (Fall)

ENGL 432 Independent Theatre Project.  
(3) (Fall and Winter) (This course will allow students to undertake special projects, frequently involving background readings, performances, and essays. This course is normally open only to Major or Honours students in the Department. Permission must be obtained from the Department before registration)

ENGL 437 Studies in Literary Form.  
(3) (Winter)

ENGL 438 Studies in Literary Form.  
(3) (Winter) Study of a specific literary form.

ENGL 440 First Nations and Inuit Literature and Media.  
(3) (Winter) (Restrictions: Not open to students who have taken ENGL 415 or ENGL 419 as "Native Canadian Literature" or as "Inuit Literature"). An introduction to Inuit and First Nations literature and media in Canada, including oral literature and the development of aboriginal television and...
film.

- **ENGL 441 Special Topics in Canadian Cultural Studies.**
  (3) Advanced study of a specific area of Canadian culture or Canadian cultural theory.

- **ENGL 443 Contemporary Women's Fiction.**
  (3) Study of a theme or author in contemporary women's fiction.

- **ENGL 444 Studies: Women's Writing and Feminist Theory.**
  (3) (Fall) Study of a particular topic in the area of women's writing and/or feminist literary theory.

**ENGL 447 Crosscurrents/English Literature and European Literature 1.**
(3) (Fall)

- **ENGL 449 Studies in the Gothic.**
  (3) Study of aspects of the Gothic in a variety of periods and media.

- **ENGL 450 Film Aesthetics.**
  (3) Theories of the formal, stylistic, and expressive dimensions of film art.

- **ENGL 451 A Period in Cinema.**
  (3) In-depth examination of a significant historical period in cinema's development, early silent era to present.

- **ENGL 452 Studies in Old English.**
  (3) (Winter) (Prerequisite: ENGL 351 or equivalent, or permission of the instructor) Study of an aspect of Old English Literature which presupposes a grounding in the language.

- **ENGL 454 Topics in Cultural Studies and Gender.**
  (3) Current studies focusing on the gendered dimensions of cultural life, including the production and reception of mainstream, avant-garde, and alternative cultures.

**ENGL 456 Middle English.**
(3) (Winter)

- **ENGL 458 Theories of Text and Performance 1.**
  (3) (Prerequisites: ENGL 230 and ENGL 269 or permission of instructor) This course provides an historical perspective on advanced theoretical problems affecting both dramatic texts and theatrical performance up to the 19th Century. The historical periods covered in this course may vary from year to year.

- **ENGL 459 Theories of Text and Performance 2.**
  (3) (Winter) (Prerequisites: ENGL 230 and ENGL 269 or permission of instructor) This course provides an historical perspective on advanced theoretical problems affecting both dramatic texts and theatrical performance starting from the 19th Century to the present. The historical periods covered in this course may vary from year to year.

- **ENGL 464 Creative Writing: Poetry.**
  (3) (Fall) (Prerequisite: permission of instructor.)

**ENGL 465D1 (4.5), ENGL 465D2 (4.5) Theatre Laboratory.**
(Prerequisites: ENGL 230, ENGL 269 and ENGL 367 or sufficient relevant experience in related drama courses or permission of the instructor.) (Students must register for both ENGL 465D1 and ENGL 465D2.) (No credit will be given for this course unless both ENGL 465D1 and ENGL 465D2 are successfully completed in consecutive terms)

- **ENGL 466D1 (3), ENGL 466D2 (3) Directing for the Theatre.**
  (Fall and Winter) (Prerequisites: ENGL 230, ENGL 269 and permission of instructor.) (Students must register for both ENGL 466D1 and ENGL 466D2.) (No credit will be given for this course unless both ENGL 466D1 and ENGL 466D2 are successfully completed in consecutive terms) The direction of a theatrical performance: preparation, casting, rehearsal, and performance are the areas of concentration.

- **ENGL 467 Advanced Studies in Theatre History.**
  (3) (Winter) (Prerequisite: Students not registered in English programs require permission of instructor) Advanced study focused on a period or issue in Theatre history.

**ENGL 469 Acting 3.**
(3) (Winter) (Prerequisite: ENGL 269 and permission of instructor.) (Restriction: Not open to students who have taken 110-469D.) Advanced training in acting involving study of some of the major European and North American acting theories and practices.

- **ENGL 472 Special Topics: Cultural Studies 2.**
  (3) Advanced study of current issues in cultural studies.

- **ENGL 474 Advanced Practical Work Theatre 2.**
  (3)

- **ENGL 476 Alternative Approaches to Media 1.**
  (3) (Fall) (Workshop course. Departmental permission required) Study of alternative uses of contemporary media with particular emphasis on the forms of independent video and community television and their relationship to mainstream television and film.

- **ENGL 477 Alternative Approaches to Media 2.**
  (3)

**ENGL 479 Philosophy of Film.**
(3) (Winter) Philosophical approaches to and topics in the study of cinema.

- **ENGL 480 Studies in History of Film 1.**
  (3) (Fall)

**ENGL 481 A Film-Maker 2.**
(3) (Fall) (Restriction: Permission of instructor required) Special topics in the works, career, and legacy of a notable film-maker

- **ENGL 482 International Cinema 2.**
  (3) Intensive study of a particular tradition or movement in international cinema.

**ENGL 483 Seminar in the Film.**
(3) (Winter)

- **ENGL 484 Seminar in the Film.**
  (3) (Restriction: Permission of instructor required) In-depth study of specific topics related to the film, which vary from year to year.

**ENGL 485 Special Topics in Theatre History 1700-1900.**
(3) (Fall) (Prerequisite: Students not registered in English programs require permission of instructor) A research seminar on selected topics in theatre history and theatre historiography.

**ENGL 486 Special Topics in Theatre History After 1900.**
(3) (Winter) (Prerequisite: Students not registered in English programs require permission of instructor) A research seminar on selected topics in theatre history and theatre historiography.

- **ENGL 487 Cultural Icons.**
  (3) (Fall) Advanced study of the formation and significance of iconic cultural figures.

- **ENGL 488 Special Topics / Communications and Mass Media 2.**
  (3) (Winter) (Prerequisite: permission of the instructor) (Restriction: Limited to students in English Major programs.) An advanced seminar in varying themes in communications for students in their final year of the Cultural Studies program.

- **ENGL 489 Culture and Critical Theory 1.**
  (3) (Winter) Intensive study of advanced theoretical topics in the study of culture.

**ENGL 490 Culture and Critical Theory 2.**
(3) (Fall) Intensive study of advanced theoretical topics in the study of culture.

- **ENGL 491 Honours Essay.**
  (6) (Fall and Winter)

**ENGL 491D1 (3), ENGL 491D2 (3) Honours Essay.**
(Fall and Winter) (Students must register for both ENGL 491D1 and ENGL 491D2.) (No credit will be given for this course unless both ENGL 491D1 and ENGL 491D2 are successfully completed in consecutive terms) (ENGL 491D1 and ENGL 491D2 together are equivalent to ENGL 491)

**ENGL 491N1 (3), ENGL 491N2 (3) Honours Essay.**
(Students must also register for ENGL 491N2) (No credit will be given for this course unless both ENGL 491N1 and ENGL 491N2 are successfully completed in a twelve month period) (ENGL 491N1 and ENGL 491N2 together are equivalent to ENGL 491)

- **ENGL 492 Image and Text.**
  (3) (Winter) Study of the relationship between verbal and visual aspects of a range of cultural artifacts. Topics may include iconography; illuminated manuscripts; book illustrations; cartoons and caricature.
ENGL 493 Narrative Media.
(3) Formal and historical approaches to narrative media, such as print, film, television, radio, and comics.

ENGL 495 Individual Reading Course.
(3) (Fall) (Intended for advanced and/or specialized work based on an extensive background in departmental studies. This course is normally not available to students who are not Majors or Honours students in the Department) By arrangement with individual instructor. Permission must be obtained from the Department before registration.

ENGL 496 Individual Reading Course.
(3) (Winter) (Intended for advanced and/or specialized work based on an extensive background in departmental studies. This course is normally not available to students who are not Majors or Honours students in the Department) By arrangement with individual instructor. Permission must be obtained from the Department before registration.

ENGL 497 Seminar in Cultural Studies.
(3) (Fall).

ENGL 498 Internship English.
(3) (Restrictions: Open to English Majors in U2 or U3) (Open to U2 and U3 English majors after they have completed 30 credits of a 90 credit program or 45 credits of a 96-120 credit program, with a minimum CGPA of 3.0, and permission of the Director of Undergraduate Studies in English. This course will not fulfill English program requirements. Students will normally register in the Fall semester for Summer internships.) Internship with an approved host institution or organization.

ENGL 500 Middle English.
(3) (Fall)

ENGL 501 16th Century.
(3) (Fall)

ENGL 502 17th Century.
(3)

ENGL 503 18th Century.
(3) (Winter)

ENGL 504 19th Century.
(3)

ENGL 505 20th Century.
(3) (Winter)

ENGL 516 Shakespeare.
(3) (Fall)

ENGL 525 American Literature.
(3)

ENGL 527 Canadian Literature.
(3) (Fall)

ENGL 528 Canadian Literature.
(3) (Winter)

ENGL 530 Literary Forms.
(3) (Winter)

ENGL 531 Literary Forms.
(3)

ENGL 532 Literary Movements.
(3)

ENGL 535 Literary Themes.
(3)

ENGL 540 Literary Theory 1.
(3) (Fall)

ENGL 545 Topics in Literature & Society.
(3) (Winter).

ENGL 553 Old English Literature.
(3) (Prerequisite (Undergraduate): ENGL 342 or equivalent)

ENGL 565 Medieval Drama Workshop.
(3)

ENGL 566 Special Studies in Drama 1.
(3) (Winter)

ENGL 568 Topics in the Dramatic Form.
(3) (Fall).

ENGL 585 Cultural Studies: Film.
(3) (Winter) Advanced study of a specific topic in film.

ENGL 586 Cultural Studies: Other Media.
(3) Advanced study of a specific topic in a medium or media other than film, such as television, advertising, radio, or the internet.

ENGL 587 Theoretical Approaches to Cultural Studies.
(3) (Winter) Advanced study of theoretical issues in and approaches to cultural studies.

FILM-World Cinemas
Offered by: Arts - Dean's Office

FILM 279 Introduction to Film History.
(3) (Expected enrolment: 175 students. Language of instruction: English.) An introduction to representative periods, movements and styles in the history of cinema, as well as questions of film historiography.

FREN-French
Offered by: French Language & Literature

FREN 198 FYS: Introduction to French and Québec Literature.
(3) (Course given in English. Students may take only one First Year Seminar. Students who register for more than one will be removed from all but one of them.) (Restriction: Open only to newly admitted students in U0 or U1.) Introduction to French and Québec literature in English translation.

FREN 199 FYS: Littérature française.
(3) (Restriction: Ouvert aux seuls nouveaux étudiants de U0 ou de U1, qui ne peuvent s'inscrire qu'à un seul séminaire de première année (FYS). Les étudiants qui s'inscriraient à plus d'un de ces séminaires devront se retirer pour n'en conserver qu'un seul.) (Maximum of 25 étudiants) Étude d'une problématique littéraire à travers quelques textes textes importants de la francophonie.

FREN 201 Composition 1.
(3) (Fall) (Préalable : test. Effectifs contingentés. Autorisation départementale requise.) Révision grammaticale et enrichissement des moyens d'expression par la composition et l'étude de textes littéraires.

FREN 203 Composition 2.
(3) (Winter) (Préalable: FREN 201 or test. Effectifs contingentés. Autorisation départementale requise) Enrichissement de la langue, délimitation des faits d'expression; étude systématique des ressources expressives du français. Rédactions.

FREN 222 Introduction aux études littéraires.
(3) (Restriction: Cours réservé aux étudiants inscrits à un programme du Département de langue et littérature françaises. Autorisation départementale requise.) Présentation d'un aperçu global de la littérature de langue française, de ses enjeux et des grandes préoccupations qui y ont cours. Initiation aux grands principes de la lecture littéraire et à l'utilisation des

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses taught only in alternate years.
‡ Denotes courses not available as Education electives.
❖ Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
† Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.

(ARTS) FREN-FRENCH
FREN 231 Linguistique française.
(3) Bref historique de la linguistique française de F. de Saussure à nos jours. Description linguistique du français moderne (éléments de phonologie, de phonétique normative, de lexicologie, de sémantique évolutif et synchronique, de syntaxe et de morphologie).
+ FREN 239 Stylistique comparée.
(3) (Préalable: test. Pas de préalable ni autorisation départementale pour la section hiver réservée aux étudiants de la Faculté d'éducation. Autorisation départementale requise.) Effectifs contingentés. Priorité donnée aux étudiants inscrits dans les programmes de traduction.) Initiation aux principes de la traduction par une étude systématique des contrastes entre les structures linguistiques de l'anglais et du français. Une bonne connaissance des deux langues est nécessaire au départ.
FREN 240 Atelier d'écriture poétique.
(3) Pratique des formes et des techniques de la création poétique.
+ FREN 244 Traduction générale.
(3) (Fall) (Préalable: FREN 239 ou test de classement. Autorisation départementale requise. En cas de note insuffisante au test de classement, l'étudiant-e s'inscrira plutôt au cours FREN 239.) Exercices portant sur les éléments syntaxiques et lexicaux qui présentent des problèmes de traduction simples mais fréquents. Traduction de textes courts.
+ FREN 245 Grammaire avancée.
(3) (Préalable: test. Pas de préalable ni autorisation départementale pour la section hiver réservée aux étudiants de la Faculté d'éducation. Autorisation départementale requise.) Cours entièrement consacré à la révision systématique des principales difficultés de la langue française.
FREN 250 Littérature française avant 1800.
(3) (Fall) Introduction à la littérature française des origines à la fin du 18e siècle.
FREN 251 Littérature française depuis 1800.
(3) (Fall, Winter) Introduction à la littérature française des 19e et 20e siècles.
FREN 252 Littérature québécoise.
(3) (Fall) Introduction à la littérature québécoise des origines à nos jours.
+ FREN 310 Cinéma français 1.
(3) Rétrospective du cinéma français depuis ses origines jusqu'à la Deuxième Guerre mondiale.
+ FREN 311 Cinéma français 2.
(3) Le cinéma français d'après-guerre.
FREN 315 Cinéma québécois.
(3) Étude thématique du cinéma québécois à travers ses principaux films.
+ FREN 324 Traduction littéraire 1.
(3) (Préalable: Autorisation départementale requise.) Problèmes pratiques que pose la transposition en français de qualité d'un texte originalement rédigé en anglais littéraire.
+ FREN 329 Civilisation québécoise.
(3) Étude de différents aspects de la société québécoise (économique, politique, social, culturel) de 1867 à aujourd'hui.
+ FREN 333 Thème de littérature d'Ancien Régime.
(3) (Préalable : FREN 222) Cours à contenu variable sur la littérature française d'Ancien Régime (du moyen âge à 1800).
FREN 334 Analyse des textes littéraires.
(3) Ce cours aborde systématiquement les méthodes, notions et modèles théoriques susceptibles de s'appliquer à l'analyse descriptive des textes littéraires de genres et époques divers. Traduction de textes en vue de la publication.
FREN 336 La langue française.
FREN 337 Analyse et interprétation littéraires.
(3) Initiation aux méthodes d'analyse et d'interprétation d'œuvres de la littérature de langue française.
+ FREN 340 Atelier d'écriture narrative.
(3) Pratique des formes et des techniques de la narration littéraire (nouvelle, roman, récit).
+ FREN 341 Traduction et recherche 1.
(3) (Préalable: Autorisation départementale requise.) Cours à contenu variable. Pratique de la traduction à partir de certaines questions de recherche qui y sont reliées.
+ FREN 346 Traduction avancée.
(3) (Fall) (Préalable : FREN 244) Stylistique comparée du français et de l'anglais; étude de procédés de traduction. Traduction de textes variés.
+ FREN 347 Terminologie générale.
(3) Étude empirique des différents stades dans le travail du terminologue: collection de données, production de fiches terminologiques, recherches ponctuelles et thématiques. Les problèmes terminologiques de la traduction. Étude de problèmes pratiques posés par la terminologie bilingue ou multilingue et ses répercussions dans un domaine particulier des connaissances humaines.
+ FREN 349 Traduction et recherche 2.
(3) (Winter) (Préalable : FREN 341) Cours à contenu variable. Pratique de la traduction à partir de certaines questions relevant de la traductologie.
FREN 355 Littérature du 20e siècle 1.
(3) Étude d'œuvres, d'auteurs ou de courants de la littérature française depuis 1900.
FREN 360 La littérature du 19e siècle 1.
(3) Étude d'œuvres, d'auteurs ou de courants de la littérature française du 19e siècle.
FREN 362 La littérature du 17e siècle.
(3) Étude d'œuvres, d'auteurs ou de courants de la littérature française du 17e siècle.
FREN 364 La littérature du 18e siècle 1.
(3) Étude d'œuvres, d'auteurs ou de courants de la littérature française du 18e siècle.
FREN 366 Littérature de la Renaissance 1.
(3) Étude d'œuvres, d'auteurs ou de courants de la littérature française du 16e siècle.
FREN 372 Littérature québécoise 1.
(3) Étude d'œuvres, d'auteurs ou de courants de la littérature québécoise des origines à nos jours.
FREN 376 Correction et révision.
(3) Principes et pratiques de la révision et de la correction de textes en vue de la publication.
FREN 377 Pratiques de l'édition littéraire.
(3) Initiation aux techniques et aux règles de l'édition de textes littéraires.
+ FREN 380 Littérature de la francophonie.
(3) Étude d'œuvres, d'auteurs ou de thèmes importants de la littérature de langue française à l'extérieur de la France et du Québec.
FREN 382 Littérature québécoise 2.
(3) Étude d'œuvres, d'auteurs ou de courants de la littérature québécoise.
FREN 391 Doctrines et idées littéraires 1.
(3) Études des doctrines et des idées ayant orienté la littérature française du moyen âge au 18e siècle.
FREN 394 Théorie de la traduction 1.
(3) Étude de certaines théories de la traduction. Étude des liens entre la théorie et la pratique.
FREN 425 Théorie de la traduction 2.
(3) Étude de certaines théories de la traduction des XXe et XXIe siècles. Étude des liens entre la théorie et la pratique.
FREN 431 Traduction et révision.
(3) (Fall) (Préalables : FREN 244, Autorisation départementale requise.) Révision de textes, principes et pratiques de la révision unilingue et bilingue. Initiation au contrôle de la qualité. La profession de réviseur. Travaux pratiques.
FREN 433 Sémantique et lexicologie.
(3) (Préalable : FREN 231 ou permission du professeur.) Théories contemporaines de sémantique et de lexicologie. Notions de lexicographie. Changements sémantiques, idiotismes, néologismes, etc.
FREN 434 Sociolinguistique du français.
(3) Éléments de sociolinguistique et leur application aux pays francophones. Rapports entre les aspects phonologiques, grammaticaux et lexico-sémantiques du parler et le milieu social. Langues en contact, planification linguistique.

FREN 440 Atelier d'écriture dramatique.
(3) Pratique des formes et des techniques de la création théâtrale et cinématographique.

FREN 441 Traduction français-anglais.
(3) (Préalable : FREN 244 ou permission du professeur.) Traduction de textes généraux du français vers l'anglais.

FREN 443 Traduction littéraire 2.
(3) (Préalable : Autorisation départementale requise.) Traduction vers le français de textes originellement rédigés en anglais littéraire. Réflexion sur les enjeux de la traduction littéraire.

FREN 444 Thème de littérature moderne.
(3) (Préalable : FREN 222) Cours à contenu variable portant sur la littérature française moderne (19e - 20e siècles).

FREN 450 Thème de littérature québécoise.
(3) (Préalable : FREN 222) Cours à contenu variable portant sur la littérature québécoise.

FREN 453 Littérature du 20e siècle 2.
(3) (Les étudiants qui ont suivi le cours FREN 351 ne seront pas admis.) Étude d'oeuvres, d'auteurs et de thèmes importants de la littérature française du 20e siècle.

FREN 455 La littérature moderne 1.
(3) Étude d'oeuvres, d'auteurs ou de courants de la littérature française du Moyen-Âge (des origines au 15e siècle).

FREN 456 La littérature médiale 2.
(3) Étude d'oeuvres, d'auteurs ou de courants de la littérature française du moyen-âge (des origines au 15e siècle).

FREN 457 La littérature de la Renaissance 2.
(3) (Les étudiants qui ont suivi le cours 125-367 ne seront pas admis) Étude d'oeuvres, d'auteurs ou de courants de la littérature française du 16e siècle.

FREN 458 La littérature du 17e siècle 2.
(3) Étude d'oeuvres, d'auteurs ou de courants de la littérature française du 17e siècle.

FREN 459 La littérature du 18e siècle 2.
(3) Étude d'oeuvres, d'auteurs ou de courants de la littérature française du 18e siècle.

FREN 461 Questions de littérature 1.
(3) (Restriction : Cours réservé aux étudiants en Spécialisation du Département.) (Préalables : Options Lettres : FREN 251, FREN 353, FREN 396; Option Lettres et traduction : FREN 251, FREN 353.) Cours à contenu variable : un thème (auteur, genre, période, question, etc.) de littérature ou de civilisation française ou francophone.

FREN 464D1 (3), FREN 464D2 (3) Projet de recherche individuel. 
(Fall) (Restriction : Cours réservé aux étudiants en dernière année de Spécialisation ou Double-Spécialisation. Autorisation départementale requise.) (Les étudiants doivent s'inscrire aux cours FREN 464D1 et FREN 464D2) (Aucun crédit ne sera accordé pour ce cours à moins de réussir les deux cours FREN 464D1 et FREN 464D2 suivis en séquence.) Travail sur un sujet spécialisé de critique littéraire, de théorie, de traduction ou de création.

FREN 472 Questions de littérature 2.
(3) (Préalables : Options Lettres : FREN 251, FREN 353, FREN 396; Option Lettres et traduction : FREN 251, FREN 353.) (Restriction : Cours réservé aux étudiants en Spécialisation du Département.) Cours à contenu variable : un thème (auteur, genre, période, question, etc.) de littérature ou de civilisation québécoise.

FREN 476 Le livre.
(3) Histoire du livre. Le livre dans le monde contemporain. La chaîne du livre, du manuscrit à l'œuvre éditée.

FREN 480 Littérature québécoise contemporaine.
(3) Histoire de la littérature québécoise récente ou actuelle. Étude d'œuvres représentatives.

FREN 482 La littérature du 19e siècle 2.
(3) Étude d'œuvres, d'auteurs ou de courants de la littérature française du 19e siècle.

FREN 485 Littérature française contemporaine.
(3) Études d'oeuvres, d'auteurs ou de thèmes importants de la littérature française récente et actuelle.

FREN 490 Théorie littéraire contemporaine.
(3) (Winter) (Cours réservé aux étudiants de U2 et U3.) Étude des grands courants critiques et théoriques actuels et récents.

FREN 492 Histoire de la traduction.
(3) Histoire des pratiques et des théories de la traduction de l'Antiquité à nos jours.

FREN 494 Traduction spécialisée.
(3) (Préalable : FREN 431 ou permission du professeur.) Ce séminaire a pour but d'approfondir les connaissances dans une perspective d'exercice pratique de la traduction. Il ne s'agit pas de former les étudiants dans une langue de spécialité quelconque, mais plutôt de faciliter la compréhension de textes portant sur les différentes disciplines ou faisant intervenir les notions propres à celles-ci.

FREN 496 Doctrines et idées littéraires 2.
(3) Études des doctrines et des idées ayant orienté la littérature française depuis le 19e siècle.

FREN 498 Questions de littérature 3.
(3) (Restriction : Cours réservé aux étudiants en Spécialisation du Département.) (Préalables : Options Lettres : FREN 251, FREN 353, FREN 396; Option Lettres et traduction : FREN 251, FREN 353.) Cours à contenu variable : un thème de théorie ou de critique.

FREN 499 Questions de littérature 4.
(3) (Restriction : Cours réservé aux étudiants en Spécialisation du Département.) (Cours à contenu variable : un thème de création littéraire) (Préalables : Options Lettres : FREN 251, FREN 353, FREN 396; Option Lettres et traduction : FREN 251, FREN 353.)

FREN 500 Lectures guidées 1.
(3) (Fall) (Restriction : Réservé aux étudiants du Département.) Lectures personnelles ayant pour but de permettre à l'étudiant de combler une lacune ou de satisfaire un intérêt personnel. Admiss sur autorisation spéciale.

FREN 551 Lectures guidées 2.
(3) (Winter) Lectures personnelles ayant pour but de permettre à l'étudiant de combler une lacune ou de satisfaire un intérêt personnel. Admiss sur autorisation spéciale.

FREN 595 Séminaire avancé lettres françaises.
(3) (Restrictions : Séminaire réservé aux étudiants de dernière année de Spécialisation ou Double-Spécialisation (Option Études et pratiques littéraires). Également ouvert aux étudiants de M.A.) Séminaire à contenu variable portant sur un thème de littérature française, québécoise ou francophone.

FREN 599 Stage en milieu de travail.
(3) (Ouvert aux étudiants de U3 avec une moyenne de 3.3 pour l'ensemble du programme, dans un programme de Spécialisation ou de Concentration majeure du Département; les trois crédits comptent parmi les crédits libres (" electives "); permission du comité des études requise. Pour les étudiants de M.A. ou de Ph.D., permission du comité des études de 2e et 3e cycle; à noter que ces crédits ne peuvent pas compter comme crédits de programme de M.A. ou de Ph.D. Une description complète des exigences et des modalités du stage est affichée sur le site web

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* Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
* Denotes courses taught only in alternate years.
* Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
* Denotes courses not offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
* Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.

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[Source: McGill University Undergraduate Programs, 2011-2012]
FRSL-FRENCH AS A SECOND LANGUAGE

Offered by: French Language Centre

FRSL 101 Beginners’ French.
(6) (Language laboratory and oral practice with a French monitor) (Prerequisite: Placement test) (Restriction: Not open to students who have taken FRSL 201 or FRSL 205) A comprehensive introduction to basic vocabulary, grammatical structures and speech patterns of written and oral French for students in any degree program having no previous knowledge of French. Learning to communicate at a functional level in a French social milieu, short essays, cultural readings, mandatory lab practice and conversation class.

FRSL 101D1 (3), FRSL 101D2 (3) Beginners’ French.
(3 hours, plus language laboratory and oral practice with a French monitor) (Prerequisite: Placement test) (Restriction: Not open to students who have taken FRSL 201 or FRSL 205) (Students must register for both FRSL 101D1 and FRSL 101D2.) (No credit will be given for this course unless both FRSL 101D1 and FRSL 101D2 are successfully completed in consecutive terms) (FRSL 101D1 and FRSL 101D2 together are equivalent to FRSL 101) A comprehensive introduction to basic vocabulary, grammatical structures and speech patterns of written and oral French for students in any degree program having no previous knowledge of French. Learning to communicate at a functional level in a French social milieu, short essays, cultural readings, mandatory lab practice and conversation class.

FRSL 103 Near Beginners’ French.
(3) (Prerequisite: Placement test.) (Restriction: Not open to students who have taken or are taking FRSL 101 or FRSL 105.) (Note: For students in any degree program whose knowledge of French is insufficient to qualify for Elementary French. 3 credits, 3 hours, plus mandatory language laboratory. Not open to student who have grade 10 French or higher in Canada or equivalent (unless special permission is granted).) Refresher course for students who have had fewer than 80 hours of previous French instruction or who have had lower than Grade 10 in French in Canada (or equivalent). Instructions in basic vocabulary and grammar applied to oral/written French. Cultural texts, short essay, and practice of basic speech patterns.

FRSL 104 Corrective French Pronunciation.
(3) (Prerequisite: Placement test or Instructor’s recommendation.) (Restrictions: Not open to students above Elementary level French. Not open to students with no previous knowledge of French.) (Note: 2 hours of oral work, 1 hour of language lab. The course may be taken concurrently with FRSL 101, 105, 206 / 207 / 208.) Introduction to French phonetics. Course designed for students who have some previous knowledge of French at a Beginner/Elementary level and need to work on pronunciation, auditory discrimination and oral expression in order to continue developing their French skills. Corrective phonetics. Intensive oral practice. Guided work in language lab.

FRSL 105 Intensive Beginners’ French.
(6) (Fall) (6 hours, plus language laboratory and oral practice with a French monitor) (Prerequisite: Placement test) (Restriction: Not open to students who have taken FRSL 201 or FRSL 205 or FRSL 101) A comprehensive introduction to basic vocabulary, grammatical structures and speech patterns of written and oral French for students in any degree program having no previous knowledge of French. Learning to communicate at a functional level in a French social milieu, short essays, cultural readings, mandatory lab practice and conversation class.

FRSL 206 Elementary French.
(3) (Fall) (3 hours, plus language laboratory) (Prerequisite: Placement test) Equivalent to FRSL 207D1. Only with special permission of the Department.

FRSL 207D1 (3), FRSL 207D2 (3) Elementary French 01.
(3 hours, plus language laboratory) (Prerequisite: Placement test) (Restriction: Not open to students who have taken Grade 12 or 13 French in Canada, or equivalent) Review and further training in basic structures, with emphasis on oral expression and listening comprehension. Awareness of French culture developed through audio-visual material and selected readings.

FRSL 208 Intensive Elementary French.
(6) (6 hours, plus language laboratory) (Prerequisite: Placement test) (Restriction: Not open to students who have taken Grade 12 or 13 French in Canada, or equivalent) (Students must register for both FRSL 207D1 and FRSL 207D2.) (No credit will be given for this course unless both FRSL 207D1 and FRSL 207D2 are successfully completed in consecutive terms) (FRSL 207D1 and FRSL 207D2 together are equivalent to FRSL 207) Review and further training in basic structures, with emphasis on oral expression and listening comprehension. Awareness of French culture developed through audio-visual material and selected readings.

FRSL 211 Oral and Written French 1.
(6) (Language laboratory) (Prerequisite: Placement test. Open to students in any degree program having an elementary knowledge of French and to those who have completed FRSL 207) (Restriction: Not open to students from Québec) Language lab attendance required. Grammar review, comprehension, vocabulary development, selected readings and group discussions.

FRSL 211D1 (3), FRSL 211D2 (3) Oral and Written French 1.
(3 hours, plus language laboratory) (Prerequisite: Placement test. Open to students in any degree program having an elementary knowledge of French and to those who have completed FRSL 207) (Restriction: Not open to students from Québec) (Students must register for both FRSL 211D1 and FRSL 211D2.) (No credit will be given for this course unless both FRSL 211D1 and FRSL 211D2 are successfully completed in consecutive terms) (FRSL 211D1 and FRSL 211D2 together are equivalent to FRSL 211) Language lab attendance required. Grammar review, comprehension, vocabulary development, selected readings and group discussions.

FRSL 212 Oral and Written French 1 - Intensive.
(3) (Fall) (6 hours, plus language laboratory) (Prerequisite: Placement test) Equivalent to the first half of FRSL 211. Only with special permission of the Department.

FRSL 215 Oral and Written French 1.
(6) (Fall) (6 hours, plus language laboratory) (Prerequisite: Placement test. Priority given to Freshman students) The course introduces students to various aspects of the French culture of the Montreal area through the exploration of pre-selected sites on the Internet. Students will do research and rallies on-line, followed by evaluated email exchanges, oral discussions, presentations in class, and field trips.

FRSL 302 Listening Comprehension and Oral Expression 1.
(3) (Fall) (3 hours, plus language laboratory) (Prerequisite: Placement test. For students who have reached a good standard in grammar and written French but who have difficulty in understanding spoken French and therefore cannot communicate effectively) Focus on oral discrimination, global comprehension and corrective phonetics.
FRSL 303 Listening Comprehension and Oral Expression 2.
(3) (Winter) (3 heures, plus un laboratoire de langue) (Préalable: Placement test. Continuation of course FRSL 302) Emphasis will be on the development of oral communication skills, laboratory exercises, vocabulary building, discussions.
● FRSL 321 Oral and Written French 2.
(6) (Préalable: Placement test. For those having taken FRSL 211 or equivalent) Oral work involving discussion and exposure to cultural and literary readings, grammar review. Methodological component integrated in coursework and developed in frequent workshop sessions.
FRSL 321D1 (3), FRSL 321D2 (3) Oral and Written French 2.
(3) (Préalable: Placement test. For those having taken FRSL 211 or equivalent) Students must register for both FRSL 321D1 and FRSL 321D2. (No credit will be given for this course unless both FRSL 321D1 and FRSL 321D2 are successfully completed in consecutive terms) (FRSL 321D1 et et FRSL 321D2 sont équivalents à FRSL 321) Oral work involving discussion and exposure to cultural and literary readings, grammar review. Methodological component integrated in coursework and developed in frequent workshop sessions.
FRSL 322 Oral and Written French 2.
(3) (Fall) (3 heures) Equivalent to the first half of FRSL 321. Only with special permission of the Department.
FRSL 325 Oral and Written French 2 - Intensive.
(6) (Winter) (6 heures) (Préalable: Placement test. Priority given to students who have taken FRSL 215) The program of FRSL 325 will be covered in one semester.
● FRSL 326 Découvrons le Québec en français.
(3) (Hiver) (3 heures) (Préalable: Placement test. Priority given to Freshman students) (Course co-listed with Québec Studies.) An introduction to the history and culture of Québec.
FRSL 332 Intermediate French: Grammar 01.
(3) (Hiver) (3 heures) (Préalable: Placement test. For those who have attained relative fluency but lack accuracy in speaking and writing) Grammar review, using both a theoretical and a practical approach. Reading materials, in addition to their cultural interest, are selected to illustrate grammatical usage, provide models of writing techniques and aid in vocabulary development.
FRSL 333 Intermediate French: Grammar 02.
(3) (Hiver) (3 heures) (Préalable: FRSL 332 or Placement test) Second part of FRSL 332.
FRSL 407 Compréhension et expression orales.
(3) (Hiver) (3 heures par semaine) (Préalable: test de classement.) S'adresse aux étudiants qui ont déjà une bonne maîtrise du français écrit. Identification des niveaux de langue et prononciation du français familier; amélioration de la compréhension auditive par l'écoute d'une variété de documents audio-visuels du Québec et d'ailleurs.
FRSL 408 Français oral: Textes et expressions.
(3) (Hiver) (3 heures par semaine) (Préalable: test de classement.) Suite du cours FRSL 407. Cours de perfectionnement de l'expression orale et écrite: amélioration de la production orale (intonation, débit, spontanéité); enrichissement du vocabulaire idiomatique relié à des fonctions socio-culturelles de la langue par le biais de techniques orales (jeux de rôles, discussions, simulations) et d'un journal.
● FRSL 431 Français fonctionnel avancé.
(6) (Préalable: test de classement.) (Les étudiants qui ont suivi le cours FRSL 400, FRSL 402 ou FRSL 432 ne seront pas admis.) Destiné aux étudiants de niveau avancé qui veulent approfondir leurs connaissances lexicales, syntaxiques et culturelles afin de pouvoir exprimer avec clarté leurs opinions sur une variété de sujets. Par l'étude de journaux, revues et textes littéraires, les étudiants se familiariseront avec la réalité québécoise contemporaine.
FRSL 431D1 (3), FRSL 431D2 (3) Français fonctionnel avancé.
(3 heures par semaine) (Préalable: test de classement.) Les étudiants qui ont suivi le cours FRSL 400, FRSL 402 ou FRSL 432 ne seront pas admis. (Students must register for both FRSL 431D1 and FRSL 431D2.) (No credit will be given for this course unless both FRSL 431D1 and FRSL 431D2 are successfully completed in consecutive terms) (FRSL 431D1 et FRSL 431D2 are equivalent to FRSL 431) Destiné aux étudiants de niveau avancé qui veulent approfondir leurs connaissances lexicales, syntaxiques et culturelles afin de pouvoir exprimer avec clarté leurs opinions sur une variété de sujets. Par l'étude de journaux, revues et textes littéraires, les étudiants se familiariseront avec la réalité québécoise contemporaine.
FRSL 432 Français fonctionnel.
(3) (Hiver) (3 heures par semaine) (Préalable: test de classement.) Première moitié du programme du cours FRSL 431. Seulement avec la permission spéciale du département.
FRSL 445 Français fonctionnel, écrit 1.
(3) (Hiver) (3 heures par semaine) (Préalable: test de classement.) (Préalable: Placement test, for those who have attended French oral courses) (Écrit 1) (Préalable: Placement test) Second part of FRSL 444. (Écrit 2). (Préalable: Placement test) Second part of FRSL 445. (Écrit 3) (Préalable: Placement test) Second part of FRSL 446.
FRSL 447 Français des médias.
(3) (Hiver) (3 heures par semaine) (Préalable: test de classement.) Cours de perfectionnement mettant l'accent sur l'enrichissement de la langue à l'oral comme à l'écrit. Analyse d'émissions de télévision ou de radio et lecture d'articles de journaux ou de revues. Activités variées portant sur des sujets d'actualité (reportages, débats, etc.) qui reflètent la société et la culture du Québec d'aujourd'hui.
FRSL 455 Grammaire et création.
(3) (Hiver) (3 heures par semaine) (Préalable: test de classement.) Perspective analytique et approche inductive et visuelle se combinent pour permettre une meilleure maîtrise du code grammaical. L'étude de textes de niveau soutenu met en relief la richesse des ressources lexicales et stylistiques du français et rend accessible la création littéraire aux étudiants non francophones.

GERM-German
Offered by: German Studies
● GERM 197 FYS: Images of Otherness.
(3) (Hiver) (3 heures par semaine) (Préalable: Placement test.) Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them. (Maximum 25) Given in English) The seminar examines images and narratives of the foreign, alien, and uncanny Other in major works of German literature, film, music, and art from Romanticism to the present. Works discussed include Wagner's Lohengrin, expressionist art, and texts by authors such as ETA Hoffmann, Kleist, Freud, Nietzsche, Kafka, and Thomas Mann.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.
GERM 200 German Language, Intensive Beginners'.
(6) (Winter) (6 hours, plus 1 hour laboratory) An intensive language course designed to develop communicative skills; covers the first level (GERM 202D1/GERM 202D2) in one term. Required for program students.

- GERM 202 German Language, Beginners'.
(6) (6 hours, plus 1 hour laboratory) A comprehensive first-level course designed to develop communicative skills.

GERM 202D1 (3), GERM 202D2 (3) German Language, Beginners'.
(Fall, Winter) (Students must register for both GERM 202D1 and GERM 202D2.) (No credit will be given for this course unless both GERM 202D1 and GERM 202D2 are successfully completed in consecutive terms) A comprehensive first level course designed to develop communicative skills.

- GERM 203D1 (3), GERM 203D2 (3) German for Reading.
(Fall, Winter) (Restriction: Not open to students who have taken or are taking beginning level courses.) (Students must register for both GERM 203D1 and GERM 203D2) (No credit will be given for this course unless both GERM 203D1 and GERM 203D2 are successfully completed in consecutive terms) Reading German.

GERM 259 Introduction to German Literature 1.
(3) (Fall) (Given in English) Introduction to the major authors, genres, and topics of German literature from the Middle Ages to the Age of Goethe, including the Nibelungenlied, Faust, classical tragedy, and the rise of the novel.

GERM 260 Introduction to German Literature 2.
(3) (Winter) (Given in English) Introduction to the major authors, genres, and topics of German literature from the 19th century to the present.

GERM 300 German Language Intensive Intermediate.
(6) (Fall) (6 hours, plus 1 hour laboratory) (Prerequisite: GERM 200 or GERM 202D1/GERM 202D2 or equivalent, or permission of Department) (Required for program students) Continuation of GERM 200; covers the second level (GERM 307D1/GERM 307D2) in one term.

- GERM 307 German Language - Intermediate.
(6) (6 hours) (Prerequisite: GERM 202 or GERM 200, or equivalent, or permission of Department) Review of grammar, further development of basic skills; literary and cultural readings.

GERM 307D1 (3), GERM 307D2 (3) German Language - Intermediate.
(Fall, Winter) (Prerequisite: GERM 200 or GERM 202, 202D1/D2, or equivalent, or permission of Department.) (Students must register for both GERM 307D1 and GERM 307D2.) (No credit will be given for this course unless both GERM 307D1 and GERM 307D2 are successfully completed in consecutive terms) Review of grammar, further development of basic skills; literary and cultural readings.

GERM 325 German Language - Intensive Advanced.
(6) (Fall) (6 hours) (Prerequisite: GERM 300 or GERM 307D1/D2, or equivalent, or permission of Department.) (Required for program students.) This course aims at developing post-intermediate proficiency in listening, speaking, reading, and writing skills, with emphasis on oral and written expression. Special attention is given to word formation and to the proper choice of grammatical structures, vocabulary, and phraseology.

- GERM 330 Landeskunde.
(3) (Winter) (Given in German) (Prerequisite: GERM 325 or equivalent, or permission of Department.) Introduction to images of modern Germany, perceptions and conceptions of Germany since the Second World War.

GERM 331 German Language after Reunification.
(3) (Winter) (Given in German) (Prerequisite: GERM 325 or equivalent, or permission of the Department) The events which led to the fall of the Berlin Wall, the reunification of Germany in 1990 and the changing cultural, social, political and economic landscape of the 'New Germany'. Highlighting issues of cultural and social politics, texts discussed include historical, literary and film material.

- GERM 336 German Language, Media and Culture.
(3) (Winter) (Course taught entirely in German.) (Prerequisite: GERM 307 or equivalent; GERM 325 may be taken concurrently) (Restriction: Not open to students who have taken GERM 336 prior to September 2009) Introduction to German culture through literary and non-literary texts, film, multimedia, commercials, painting and photography. By learning how to read these cultural productions, students will refine their communication skills, expand reading strategies, build vocabulary, and review selective grammatical structures.

- GERM 341 Essay Writing.
(3) (Fall) (Given in German) (Prerequisite: GERM 325 or equivalent, or permission of Department) This course is designed to further develop the writing skills of students having attained the 325-level. The rhetorical strategies of writing will be studied and analyzed with different text genres: letters, curriculum vitae, summaries, book reviews, expository and argumentative essays, minutes, feature stories, term papers, etc. Particular attention will be paid to argumentation, vocabulary, and style.

- GERM 342 Translation.
(3) (Fall) (Given in German) (Prerequisite: GERM 325 or equivalent, or permission of Department) An introductory course, emphasizing practice more than theory. It covers mainly written translation (from German into English), i.e. reading and writing, and teaches to analyze, and to manipulate, grammatical/syntactical structures and to get a sense of semantic accuracy. The course is designed to familiarize students with basic technical terminology and to enable them to observe, analyze and produce accurate and appropriate translations. Vocabulary building is not a main issue.

- GERM 345 Business German 1.
(3) (Fall) (Given in German) (Prerequisite: GERM 325 or equivalent, or permission of the Department) This course introduces students to the terminology and syntax of Business German in contrast with English to ensure a sound basis for business communication.

- GERM 346 Business German 2.
(3) (Winter) (Given in German) (Prerequisite: GERM 345 or equivalent, or permission of the Department) This course is designed to develop oral and written skills for competence in German for business communication as well as cross-cultural awareness by discussing current materials from various sources.

- GERM 352 German Literature - 19th Century 3.
(3) (Winter) This course offers an introduction to the literary movements of Biedermeier, Junges Deutschland, Vormärz, Poetic Realism, and Naturalism in connection with the political and social developments in 19th century Germany. Tests by major authors such as Buchner, Heine and Fontane will be discussed.

- GERM 353 19th Century Literary Topics.
(3) (Winter) (Given in German) (Prerequisite: GERM 352, or equivalent, or permission of the Department) Varying topics of 19th century literature.

- GERM 354 Literary Approach to Song.
(3) (Fall) (Prerequisite(s): No official prerequisite, but students should have GERM 307D1/D2 or equivalent.) (Given in English.) Examination of the original cultural/historical background of texts and their settings by composers such as Schubert, Schumann, Wagner, Mahler and the New Vienna School.

- GERM 355 Nietzsche and Wagner.
(3) (Winter) (Given in English) This course examines the relationship between the philosopher Friedrich Nietzsche and the composer Richard Wagner. It explores their intellectual kinship, their view of art, music, and philosophy in the context of Nietzsche's critique of modernity and decadence and analyzes the Third Reich's and Hollywood's appropriation of Nietzsche and Wagner.

- GERM 357 German Culture in European Context.
(3) (Fall) (Course given in English) (Prerequisite: A culture or literature course at the 200 or 300 level) A comparative examination of selected moments in German literary, artistic and cultural history in relation to broader European movements; focus on influences, exchanges and dialogues across national boundaries.
GERM 358 Franz Kafka.
(3) (Fall) (Given in English) This course will look at the works on Franz Kafka, a “classic” modernist author, in three characteristic genres: the story, the novel, and the short prose piece. A selection of Kafka’s letters and diary entries as well as critical approaches to his work will also be studied.

● GERM 359 Bertolt Brecht.
(3) (Fall) (Given in English) This course provides an overview of Brecht’s development as a dramatist and as a theorist, advocate and practitioner of a new form of theater. Attention will also be given to Brecht as a poet and to film versions of Brecht’s works.

GERM 360 German Literature 1890 to 1918.
(3) (Fall) (Given in German) (Prerequisite: GERM 325 or equivalent) The course deals with various genres of literature and forms of culture associated with Naturalism and Expressionism from the turn of the century to the Weimar Republic. Writers studied may include: Hauptmann, Wedekind, Schnitzler, Heinrich Mann, Sternheim, Kaiser, Thomas Mann, Kafka, Rosa Luxemburg.

● GERM 361 German Literature 1918 to 1945.
(3) (Fall) (Given in German) (Prerequisite: GERM 325 or equivalent) The course deals with the culture, literature and society of the Weimar Republic and the period of the Third Reich and the Holocaust. Writers studied will include: Brecht, Seghers, Fleisser, Kästner, Tucholsky, Benn, Kolmar, and Lasker-Schüler.

GERM 362 20th Century Literature Topics.
(3) (Fall) (Given in German) (Prerequisite: GERM 325 or equivalent) Introduction to selected topics and genres in twentieth century literature and culture.

● GERM 363 German Postwar Literature.
(3) (Fall) (Given in German) (Prerequisite: GERM 325 or equivalent) The course deals with the literature and culture of the Federal Republic of Germany, the former German Democratic Republic and unified Germany since 1945. It treats major authors and trends. Topics addressed include issues of nationalism and gender, multiculturalism, and other concerns of contemporary German society.

● GERM 364 German Culture: Gender and Society.
(3) (Winter) (Given in English) In connection with notions of identity, nationhood, political change, and cultural difference, this course investigates concepts and issues of gender in contemporary German Society. The readings include critical essays and literary texts by writers, scholars, philosophers, journalists, politicians, and political activists.

● GERM 365 Language of Media from Manuscript to Hypertext.
(3) (Winter) (Given in English) The history of communications media and their impact on our language and thought discussions of literary works in a variety of media (book, radio, film, television, hypertext) by authors such as Goethe, Kafka, Borges, Brecht, Beckett, Sontag and DeLillo.

● GERM 366 Postwar German Literature/Film.
(3) (Fall) (Given in English) The course is a study of postwar German literature and film, focusing on the cinematic representation of literary texts. The emphasis is on the representation of German history in both media, on historical memory and gender relations.

GERM 367 Topics in German Thought.
(3) (Fall) (Given in English) A variety of issues significant to the development of German cultural and intellectual life.

● GERM 368 Fin-de-Siècle Vienna.
(3) (Prerequisite: A cultural or literature course at the 200 or 300 level!) (Course given in English) Interdisciplinary study of one of the formative periods of modern European culture; examination of literature, art, thought, culture and politics in Vienna around 1900.

● GERM 369 German Cinema from 1895.
(3) (Given in English) Historical survey of German film from 1895 to the present. Movements and periods covered include Wilhelmine cinema, expressionism, Nazi cinema, New German Cinema and post-wall film. Filmmakers include Fritz Lang, F.W. Murnau, Leni Riefenstahl, R.W. Fassbinder, Wim Wenders, Tom Tykwer and Faith Akin.

● GERM 370 Special Topics in German Film.
(3) (Fall) (Given in English) Intensive study of selected topics and periods in German film history.

● GERM 380 18th Century German Literature.
(3) (Winter) (Given in German) (Prerequisite: GERM 325 or equivalent) An introduction to German literature of the 18th century: Enlightenment and Sturm und Drang. The course will follow a socio-historical approach, i.e. it will attempt to delineate some of the relations that exist between the texts and their social, political, and cultural context.

● GERM 382 Faust: Chapbook to Horror Film.
(3) (Winter) (Given in English.) This course will explore why the story of a mathematician who sold his soul to the devil has remained one of the most enduring myths in western culture. Works discussed will include plays by Marlowe, Goethe, and Valery and films by Murnau, Kurosawa, and others.

GERM 397 Individual Reading Course 01.
(3) (Fall) Given solely at the discretion of the instructor.

GERM 398 Individual Reading Course 02.
(3) (Winter) Given solely at the discretion of the instructor.

● GERM 400 Interdisciplinary Seminar: Contemporary German Studies.
(3) (Fall) (Given in English) An interdisciplinary, team-taught seminar, for third-year students on a single topic or theme. Topics may vary from year to year.

● GERM 412 Heroes, Lovers and Crusaders.
(3) Representations of the hero in medieval German literature, his socio-political, cultural, and religious roles.

● GERM 450 Classical Period in German Literature.
(3) (Fall) (Given in German) (Prerequisite: GERM 325 or equivalent) For the most part, the works of Goethe and Schiller are discussed.

GERM 451 German Romanticism.
(3) (Winter) (Given in German) (Prerequisite: GERM 325 or equivalent) This course deals with German literary texts of the Romantic period, studied in their literary, historical, cultural and sociological context. References will be made to the other arts, in particular to music. Writers studied will include: Hoffmann, Eichendorff, Novalis, Hoffmann, Kleist, and Tieck.

● GERM 455 Women of the Romantic Era.
(3) (Fall) (Prerequisite: GERM 325 or equivalent.) (Course is given in German for advanced undergraduate program students.) This course places at its centre the life-worlds, biographies, and forms of self-expression by German women of the Romantic Era.

GERM 498 Individual Reading Course 04.
(3) (Winter) Given solely at the discretion of the instructor.

GERM 499 Internship: German Studies.
(3) (Fall or Winter) (Prerequisite: Permission of the departmental Internship Advisor.) (Open to U2 and U3 students after completing 30 credits of a 90 credit degree program or 45 credits of a 69-120 credit program, a minimum CGPA of 2.7, and permission of the departmental Internship Advisor.) This course can only be taken as an elective course. German language
proficiency required.) Internship with an approved host institution or organization.

GERM 570 Joint Honours Thesis.
(3) (Fall or Winter) (Restriction: For students in the Joint Honours Program only.)

GERM 575 Honours Thesis.
(6) (Fall or Winter) (Restriction: For students in the Honours Program only.)

- **GERM 580 Topics in 18th Century Literature.**
  (3) (Prerequisite: GERm 325 or equivalent.) Topics in eighteenth-century German literature.

### HISP-Hispanic Studies

**Offered by:** Hispanic Studies

**HISP 199 FYS: Hispanic Literature and Culture.**
(3) (Winter) (Course taught in Spanish. Students who register for more than one FYS will be obliged to withdraw from all but one of them. Maximum 20 students.) (Prerequisite: Placement Test offered by the Department of Hispanic Studies or Permission of the Instructor.) (Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS.)

Introduction to major issues in Hispanic literature and culture through the analysis of primary and secondary sources and intensive writing.

- **HISP 202 Portuguese Language: Beginners.**
  (6) (Restriction: Departmental approval required) (Restriction: beginners only) A comprehensive first-year course in speaking, reading and writing. Selected readings in Portuguese and Brazilian literature.

- **HISP 202D1 (3), HISP 202D2 (3) Portuguese Language: Beginners'.**
  (Fall, Winter) (4 hours weekly, including laboratory) (Restriction: Departmental approval required) (Restriction: beginners only) Students must register for both HISP 202D1 and HISP 202D2. (No credit will be given for this course unless both HISP 202D1 and HISP 202D2 are successfully completed in consecutive terms)

A comprehensive first-year course in speaking, reading and writing. Selected readings in Portuguese and Brazilian literature.

- **HISP 204D1 (3), HISP 204D2 (3) Portuguese Language: Beginners'.**
  (Fall, Winter) (6 hours weekly, including laboratory) (Restriction: Departmental approval required) (Restriction: beginners only) A thorough review of Spanish grammar with a goal of proficiency in written and oral communication, through readings in the literature and civilization of Spain and Spanish America.

- **HISP 210 Spanish Language: Beginners'.**
  (6) (Prerequisite: GERm 325 or equivalent.) Topics in eighteenth-century German literature.

- **HISP 219 Spanish Language Intensive - Intermediate.**
  (6) (Fall or Winter) (7 hours weekly, including laboratory) (Prerequisite: HISP 210 or 210D1/D2 or HISP 218 or equivalent.) (Restriction: Departmental approval required) (Preference will be given to students in their first year of university study) (Restriction: Not open to students who have taken HISP 220D1/HISP 220D2 or equivalent) A thorough review of Spanish grammar with emphasis upon current usage. Enrichment of all language skills, with a goal of proficiency in written and oral communication, through readings in the literature and civilization of Spain and Spanish America.

**HISP 220 Spanish Language: Intermediate.**
(6) (Restriction: Not open to students who have taken HISP 219 or equivalent. Departmental approval required.)

**HISP 222D1 (3), HISP 222D2 (3) Spanish Language: Intermediate.**
(Fall, Winter) (Restriction: Not open to students who have taken HISP 219 or equivalent. Departmental approval required.) (Students must register for both HISP 222D1 and HISP 222D2.) (No credit will be given for this course unless both HISP 222D1 and HISP 222D2 are successfully completed in consecutive terms) A thorough review of Spanish grammar with emphasis upon current usage. Enrichment of all language skills, with a goal of proficiency in written and oral communication, through readings in the literature and civilization of Spain and Spanish America.

**HISP 225 Hispanic Civilization 1.**
(3) (Fall) (Taught in English) A survey of historical and cultural elements which constitute the background of the Hispanic world up to the 18th century; a survey of the pre-Columbian indigenous civilizations (Aztec, Maya and Inca) and the conquest of America.

**HISP 226 Hispanic Civilization 2.**
(3) (Winter) (Taught in English) A survey of the constitution of the ideological and political structures of the Spanish Empire in both Europe and America until the Wars of Independence; a survey of the culture and history of the Hispanic people from the early 19th Century to the present.

**HISP 241 Survey of Spanish Literature 1.**
(3) (Fall) (Taught in Spanish) (Prerequisite: successful completion of HISP 220D1/D2. HISP 219 or equivalent) From the origins to the Golden Age through a study of representative works.

**HISP 242 Survey of Spanish Literature 2.**
(3) (Winter) (Taught in Spanish) (Prerequisite: successful completion of HISP 221 or CEGEP course 607-401) (Corequisite: HISP 220D1/D2, or equivalent.) From the Golden Age to the modern period through a study of representative works.

**HISP 243 Survey of Spanish-American Literature 1.**
(3) (Fall) (Taught in Spanish) (Prerequisite: successful completion of HISP 220D1/HISP 220D2. HISP 219 or equivalent) From the Colonial period to Modernism through a study of representative works.

**HISP 244 Survey of Spanish-American Literature 2.**
(3) (Winter) (Taught in Spanish) (Prerequisite: successful completion of HISP 221 or CEGEP course 607-401) (Corequisite: HISP 220D1/D2, or equivalent.) From the Golden Age to the modern period through a study of representative works.

**HISP 301 Hispanic Literature - English Translation 1.**
(3) (Winter) (Taught in English) A special topic in Spanish literature will be studied in English translation.

**HISP 321 Spanish Literature - 18th Century.**
(3) (Winter) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) A critical study of neo-classical drama and poetry; satirical prose; Jovellanos, Iriarte, Moratin and others.

**HISP 324 20th Century Drama.**
(3) (Fall) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) Satirical drama and theatre of social protest. Literatura comprometida. García Lorca and Casona; Buero Vallejo,
Sastre, Olmo, Muñiz, Arrabal and others.

**HISP 326 Spanish Romanticism.**
(3) (Winter) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) The aesthetic and historical development of Romanticism, with special emphasis on lyric poetry and drama.

**HISP 327 Literature of Ideas: Spain.**
(3) (Winter) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) Critical reading and discussion of works of outstanding thinkers as a key to understanding the development of social forces and institutions.

**HISP 328 Literature of Ideas: Spanish America.**
(3) (Fall) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) An intensive study of representative authors from the period of Independence to the advent of Modernism.

**HISP 332 Spanish-American Literature of 19th Century.**
(3) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) An intensive study of representative authors from the period of Independence to the advent of Modernism.

**HISP 431 Spanish Cinema.**
(3) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor.) A study of representative films, directors and movements of the region. Topic specified by instructor.

**HISP 340 Spanish-American Cinema.**
(3) (Fall) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor.) A study of representative films, directors and movements of the region. Topic specified by instructor.

**HISP 350 The Generation of 1898.**
(3) (Winter) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) Restriction: Not open to students who have taken HISP 349 or HISP 350 (prior to January 2005). An examination of the background of genre developments in prose, fiction, drama, and poetry by representative authors of the Generation of 1898 in Spain.

**HISP 351 Spanish-American Novel 1.**
(3) (Winter) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) Critical reading and discussion of 20th century Spanish-American fiction writers.

**HISP 352 Spanish-American Novel 2.**
(3) (Winter) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) Critical reading and discussion of contemporary Spanish-American fiction writers.

**HISP 356 Spanish-American Short Story.**
(3) (Fall) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) Study of style, tendencies and types as reflected in the evolution of this genre, and seen against the background of a developing continent.

**HISP 358 Women Writers Fiction Spanish America.**
(3) (Fall) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor.) (Note: Course taught in Spanish.) Social movements and literary tendencies, as reflected in the novels and short stories of representative authors of the 19th and 20th centuries, such as Gómez de Avellaneda, Matto de Turner, Brunet, Bombal, Levinson, and others.

**HISP 437 Viceregal Spanish America.**
(3) (Winter) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) Social movements and literary tendencies, as reflected in the novels and short stories of representative authors of the 19th and 20th centuries, such as Gómez de Avellaneda, Matto de Turner, Brunet, Bombal, Levinson, and others.

**HISP 442N1 (1.5), HISP 442N2 (1.5) Modernismo.**
(Fall) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) A study of the Modernist School of Spanish American authors.

**HISP 451D1 (3), HISP 451D2 (3) Cervantes.**
(Fall, Winter) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) (Students must register for both HISP 451D1 and HISP 451D2.) (No credit will be given for this course unless both HISP 451D1 and HISP 451D2 are successfully completed in consecutive terms) A study of the complete Don Quijote, the Novelas ejemplares, the Entremeses and other theatrical works. Some account of outstanding critical works on Cervantes.

**HISP 458 Topics: Spanish Literature.**
(3) (Fall) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) Specific topics of interest in Spanish literature.

**HISP 459 Topics: Spanish-American Literature.**
(3) (Fall) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) Specific topics of interest in Spanish-American literature.

**HISP 464 Theory of Film.**
(3) (Fall) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) A study of the Modernist School of Spanish American authors.

**HISP 470 Doctoral Seminar: Hispanic Studies.**
(3) (Fall, Winter) (Restriction: Not open to students who have taken HISP 470 in the previous term. Required for students in the Doctoral program in Hispanic Studies.) A seminar on specific topics of interest in Hispanic Studies.

**HISP 471 Theory of Film.**
(3) (Fall) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) A study of the Modernist School of Spanish American authors.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

- Denotes courses taught only in alternate years.
- Indicates that departmental approval/permission must be obtained by a student prior to registration.
- Denotes courses not offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
- Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
- Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
- Denotes courses not offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
- Indicates that departmental approval/permission must be obtained by a student prior to registration.
- Denotes courses taught only in alternate years.
- Indicates that departmental approval/permission must be obtained by a student prior to registration.
● HISP 453 20th Century Spanish-American Poetry. (3) (Fall) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) A study of representative trends and authors (Dario, Martí, Huidobro, Mistral, Vallejo, Neruda, Paz).

● HISP 454 Major Figures: Spanish Literature. (3) (Winter) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) Specific figures of interest in Spanish literature.

● HISP 455 Major Figures: Spanish-American Literature. (3) (Winter) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) Specific figures of interest in Spanish-American literature.

● HISP 458 Golden Age Literature: Renaissance. (3) (Fall) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) (Given in alternate years) (Restriction: Not open to students who have taken HISP 421, 458 or 460 prior to September 2004) A comprehensive examination of the poetry, prose and drama of the Renaissance in Spain through representative authors.

● HISP 460 Golden Age Literature: Baroque. (3) (Winter) (Prerequisite: Successful completion of any Survey of Literature (HISP 241, HISP 242, HISP 243, HISP 244) or permission of the instructor. Note: Course taught in Spanish.) (Given in alternate years) (Restriction: Not open to students who have taken HISP 421, 458 or 460 prior to September 2004) A comprehensive examination of the poetry, prose and drama of the Baroque period in Spain through representative authors.

● HISP 470 Tutorial 01. (3) (Fall)

● HISP 471 Tutorial 02. (3) (Winter)

● HISP 490 Honours Thesis. (6) (Fall or Winter) (Restriction: Reserved for Honours and Joint Honours students who will present their honours thesis on a theme in Hispanic Studies written under the direction of a member of staff during their final year of study).

● HISP 490D1 (3), HISP 490D2 (3) Honours Thesis. (Fall, Winter) (Students must register for both HISP 490D1 and HISP 490D2.) (No credit will be given for this course unless both HISP 490D1 and HISP 490D2 are successfully completed in consecutive terms) (HISP 490D1 and HISP 490D2 together are equivalent to HISP 490)

● HISP 499 Internship: Hispanic Studies. (3) (Fall or Winter) (Prerequisite: Permission of the departmental Internship Advisor.) (Restriction: Open to U2 and U3 students after completing 30 credits of a 90 credit degree program or 45 credits of a 69-120 credit program, a minimum CGPA of 2.7, and permission of the departmental Internship Advisor. This course will normally not fulfill program requirements for seminar or 400- level courses. Spanish language proficiency required.) Internship with an approved host institution or organization.

● HISP 501 History of the Spanish Language. (3) (Fall) (Prerequisite: Permission of the instructor) (Note: Course taught in Spanish) The development of Spanish from its beginnings to the Modern Period, including usage in Spanish America and Judeo-Spanish.

HIST-HISTORY

Offered by: History and Classical Studies

● HIST 193 FYS: Topics in History. (3) (Restriction: Open only to newly admitted students in U0 or U1 who may take only one FYS.) (Students who register for more than one FYS will be obliged to withdraw from all but one. Maximum of 25 students.) An introduction to the discipline of history through an in-depth look at a topic.

● HIST 194 FYS: Jewish Concepts of Others. (3) (Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) (Maximum 25 students.) (For first year students only.) A survey, using translated primary and selected secondary sources, of the ways in which Jews represented Christians from late antiquity to the present. Legal, liturgical, literary and other sources are examined with the focus on the Medieval and Early Modern periods.

● HIST 195 FYS: Sources of World History. (3) (Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) (Maximum 25 students) (Restriction: For first year students only) An introduction to the constitutive intellectual traditions of world history.

● HIST 197 FYS: Race in Latin America. (3) (Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) (Maximum 25 students) This seminar explores what it meant to be native, black, or white in Latin America from the colonial period to the present. It explores how conceptualisations of race and ethnicity shaped colonialism, social organisation, opportunities for mobility, visions of nationhood, and social movements.

● HIST 198 FYS: Nation Building and Nationalism. (3) (Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) (Maximum 25 students) An introduction to some of the major theories of nationalism; an exploration of the many varieties of nationalism and forms of nation-building; a particular focus on the historical background to three case studies of current interest: Yugoslavia, Ireland and Quebec.

● HIST 199 FYS: Medieval Women and Men. (3) (Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) (Maximum 25 students) This course examines the life choices available to women and men of the Middle Ages: how opportunities and restrictions of medieval society affected personal autonomy, careers, and relations between the sexes. Topics include: sexuality, religious life, marriage, work. Emphasis on learning techniques for reading and writing about primary sources (in translation).

● HIST 200 Introduction to African History. (3) (Restriction: Not open to students who have taken 101-200D) This course stresses the interactions of the peoples of Africa with each other and with the worlds of Europe and Islam from the Iron Age to the European Conquest in 1880.

● HIST 201 Modern African History. (3) (Restriction: Not open to students who have taken 101-200D) While covering the general political history of Africa in the twentieth century, this course also explores such themes as health and disease, gender, and urbanization.

● HIST 202 Survey: Canada to 1867. (3) (Fall) A survey of early Canada, from periods known mainly through archaeological records to the Confederation era. Social, cultural, economic and political themes will be examined.

● HIST 203 Survey: Canada since 1867. (3) A survey of the development of Canada from Confederation to the present day. Social, cultural and political history will be examined in a general way.

● HIST 204 History of Great Britain to 1688. (3) A survey of the development of Britain from the Middle Ages to the Glorious Revolution. Emphasis on political changes, seen in relation to the economic, social and intellectual background.

● HIST 205 Ancient Mediterranean History. (3) (Restriction: Not open to students who have taken HIST 209 prior to September 2006.) A survey of Mediterranean history from the Bronze Age until the 6th century AD, focusing on Greek and Roman civilization.
HIST 206 Africa and the Indian Ocean World. (3) Examines the rise and development of an Indian Ocean "global" economy from the first millennium C.E. and Africa's role within it.

HIST 207 Jewish History: 400 B.C.E. to 1000. (3) (Restrictions: Not open to students who have taken JWST 216) An overview of Jewish history from the period of Ezra and Nehemiah to the death of Hai Gaon, c. 1035. Focus on the experience of the Jews in Hellenistic and Islamic civilizations. Topics include Jewish sects, rabbinic literature in its various genres, the Karaite schism, and the rise of the Gaonate.

HIST 208 Introduction to East Asian History. (3) (Restriction: Not open to students who have taken 101-208D) An introduction to the history of East Asian civilization from earliest times to 1600, with emphasis on China and Japan, including social, intellectual, and economic developments as well as political history.

HIST 211 American History to 1865. (3) (Fall) Introduction to the history of colonial North America and the United States up to the Civil War, in their Atlantic context.

HIST 213 World History, 1300-2000. (3) A thematic and comparative approach to world history, beginning with the rise of the Mongols in the thirteenth century, and ending with globalization in the late twentieth century. Trade diasporas, technology, disease and imperialism are the major themes addressed.

HIST 214 Introduction to European History. (3) (Restriction: Not open to students who have taken 101-215D) The course covers European History from the Ancient Greeks to the first part of the seventeenth century. The object of the course is two-fold, to provide students with: 1) a number of essential canons of pre-modern history; 2) hands-on experience in the reading, interpretation and writing of history.

HIST 215 Modern European History. (3) (Restriction: Not open to students who have taken 101-215D) A social, economic, political and cultural survey of European History from the early seventeenth century to the present.

HIST 216 History of Russia to 1801. (3) A survey of Russian history, from the origin of the Slavs to the establishment of the Kievan State, the coming of the Mongols, the emergence of Muscovy, and the rise of the Russian Empire.

HIST 218 Modern East Asian History. (3) (Winter) An introduction to the history of China and Japan from the seventeenth century to the present, including modernization, nationalism, and the interaction of the two countries.

HIST 219 Jewish History: 1000 - 2000. (3) The Jewish experience from the rise of the European centres to the present.

HIST 221 United States since 1865. (3) (Winter) Examines the defining moments and movements in the U.S. since Reconstruction, including populism, progressivism, the World Wars, the New Deal, the Cold War, the sixties and its consequences. Emphasis on the political, social and ideological transformations that ensued.

HIST 223 Natives of the Americas. (3) The history of the indigenous peoples of the Americas on the eve of contact with Europeans and through the period of colonization.

HIST 224 Britain Since 1688. (3) (Prerequisites: HIST 204 or consent of instructor) A survey of the development of Britain from the Glorious Revolution to the present day. Emphasis on political, social, economic and intellectual change against a background of Britain's evolving imperial and world role.

HIST 225 History of France to 1789. (3) Survey of French society from the fall of the Roman Empire to the outbreak of the French Revolution. Emphasis on the construction of the French state in the medieval period, religious conflicts of the 16th century, social and economic structures under absolutism, intellectual and economic changes in the 18th century.

HIST 226 Eastern Europe in 20th Century. (3) Introductory survey of east central and southeastern European history from the twilight of nineteenth-century imperialism to the most recent expansion of the European Union. Consideration will be given to the two world wars and their consequences; nationalism, fascism, and socialism; and the revolutions of 1989.

HIST 231 Archaeology of the Ancient World. (3) A survey of the history of classical archaeology in the Graeco-Roman Mediterranean through the study of material evidence and literary texts.

HIST 236 Russia from 1801 to 1991. (3)

HIST 238 Histories of Science. (3) (Coverage will vary by instructor.) (Restriction: Not open to students who have taken HIST 239 or HIST 335.) An introduction to the history of science, with attention to conceptual development and to institutional and social settings. Coverage will vary by instructor, but will include a range of periods (from antiquity to the 20th century), geographical settings, and themes (e.g. instrumentation; visualisation; experiment; science and society).

HIST 240 Modern History of Islamic Movements. (3) Islamic revival in the Middle East which led to the rise of different versions of Islamic traditions and beliefs. Emphasis on the nature and character of leading nationalist and Islamic movements and their ideologues since the late 19th century.

HIST 249 Health and the Healer in Western History. (3) (Restriction: Not open to students who took HIST 349 prior to Winter 2006.) (Note: Also available to first-year medical students in their options program.) The natural history of health and disease and the development of the healing arts, from antiquity to the beginning of modern times. The rise of "western" medicine. Health and healing as gradually evolving aspects of society and culture.

HIST 250 History and the Environment. (3) Sketch of the history of the material aspects of human interaction with the rest of nature. Included will be a historian's view of the social, technical, and ecological implications of the great variety of activities devised by our species. Though global in outlook, this course will emphasize the relevant historiography of France, England and North America.

HIST 260 Nationalisms in Canada. (3) (Prerequisite: HIST 203 or permission of instructor.) (Restriction: Not open to students who took CANS 300 (106-300A) before September 2002.) An historical explanation of the Canadian experience of nationalism from the Patriotes to the First Nation, with reference to politics, economics, iconography, ideology and multicultural experience.

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Denotes courses taught only in alternate years.
‡ Professional Practice (Stage) in Dietetics involving special prerequisites.
✦ Indicates that departmental approval/permission must be obtained by a student prior to registration.
† Denotes courses not available as Education electives.
▲ Denotes courses with limited enrolment.
✱ Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
❉ Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
▲ Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
HIST 301 U.S. Presidential Campaigning.
(3) (Prerequisite: any course in U.S. history or consent of instructor) The history of presidential campaigning in the U.S. will be considered against the backdrop of party change, technological development and the growth of American democracy.

HIST 302 International Relations History 1: 1750-1950.
(3) (Prerequisite: one course in post-1800 History or permission of instructor.) The history of international relations during the era of the four global wars, the expansion of the West in world affairs, the changes in the balance of power in Europe, the rise and fall of the colonial empires, and the ascendancy of the flank powers, Russia and the United States.

HIST 303 History of Quebec.
(3) (Prerequisite: HIST 202/HIST 203) (The ability to read French is helpful but not mandatory) Covering Quebec history from New France to contemporary times, this course will include themes like ethnic relations, citizenship, gender and material culture. It is of particular interest to students in Education who foresee teaching about Quebec.

HIST 304 International Relations History 2: Cold War.
(3) (Prerequisite: HIST 302 or HIST 215 or a 20th C. history course or permission of instructor.) The history of the Cold War. Special attention will be paid to the different viewpoints and experiences of the Cold War participants by studying the historiography and archival materials released in the Eastern Block and Western World.

HIST 305 Ancient Warfare and Imperialism.
(3) (Prerequisite: HIST 205 or HIST 231 or permission of instructor.) (Restriction: Not open to students who have taken 101-305D. Not open to U0 students) Comparative study of ancient military history, warfare and imperial strategies.

HIST 306 East Central Europe Since 1944.
(3) (Prerequisite: HIST 215 or HIST 226 or permission of instructor) An examination of important problems in the postwar history of east central Europe. Topics include: the establishment of Communist regimes; Stalinism; the Hungarian Revolution of 1956; the Prague Spring; and Solidarity; political opposition; culture; and the revolutions of 1989.

HIST 307 Jews in Poland.
(3) (Prerequisite: any course in Jewish history or East European History) (Restriction: Not open to students who have taken 101-307D) Analyses of primary sources (in translation) related to the social, economic and institutional history of the Jews in Poland and their place in the East European Jewish community. Topics include: the Jews during "The Flood" (1648 - 1667), the communal crisis of the late 17th century, the Frankist movement, and Hasidism.

HIST 308 Formation of Chinese Tradition.
(3) (Restriction: Not open to students who have taken 101-308D) An examination of the multiple sources of the Chinese imperial system from the period of the neolithic culture interaction sphere to the fall of the Han dynasty in 220 C.E. Special attention is paid to socio-economic developments as well as to the evolution of philosophies, ideology, and social practice. The sequel to this course is HIST 358.

HIST 309 History of Latin America to 1825.
(3) (Fall) The social, cultural, and economic aspects of Latin America and the Caribbean in the colonial period. Topics include: pre-Columbian and Hispanic cultures in conflict, plantation empires, and the transition to independence. The sequel to this course is HIST 360.

HIST 310 Knowledge and Atlantic Empire.
(3) (Prerequisites: HIST 211 or permission of instructor.) The role of knowledge in British colonization and imperialism in the early modern Atlantic world. Explores the notion of an Atlantic “information order” (and its problems) by examining the politics of knowledge from England and Ireland to British America, and ultimately the early United States and British India.

HIST 311 The Gilded Age and The Progressive Era.
(3) (Prerequisite: any course in U.S. history or consent of instructor) The social, economic, and political consequences of industrialization in the history of the United States between 1877 and 1914. Emphasis on the rise of mass production, urbanization, immigration, rural protest, the labour movement, social and political reform.

HIST 312 History of Consumption in Canada.
(3) (Prerequisites: HIST 202 or HIST 203 or permission of instructor.) History of consumption in Canada since 1600 in relation to subsistence and the early market; modern class and gender relationships; conceptions of citizenship.

HIST 313 Eastern Europe: 1740-1914.
(3) (Prerequisite: A course in European history or permission of instructor.) History of the Habsburg Empire, Poland, and the Balkans from the accession of Maria Theresa to the Great War. Special consideration will be given to the Enlightenment, the partitions of Poland, the revolutions of 1848, the rise of nationalism, and fin-de-siècle society and culture.

HIST 314 Reformation in Britain & Ireland.
(3) (Prerequisite: HIST 204 or HIST 214 or HIST 215 or permission of instructor) Survey of British and Irish history from c. 1450 to 1660. Focus will be on the origins and consequences of the Protestant and Catholic Reformations of the Tudor and early Stuart dynasties. These religious changes will be approached from a variety of perspectives including political, social, intellectual, economic and religious history.

HIST 315 Themes in World History.
(3) (Prerequisite: HIST 213 or Permission of Instructor.) Historical phenomena that transcend the boundaries of nation-status and contributed to the long-term development of globalization.

HIST 316 Russia: Revolutions 1905 and 1917.
(3) (Prerequisite: A course in Russian, Soviet or European history) Reform and Revolutions: a comparison of the collapse of the Soviet Union in 1991 and of the Tsarist Empire and Provisional Government in 1917, with some discussion of the reforms that anticipated each cataclysm.

HIST 317 Introduction to Indian Ocean World History.
(3) (Prerequisite: A 200-level African or Asian history course or a political science course or an Islamic Studies course or permission of instructor.) Examines the unifying features that linked the entire region from eastern Africa to the Middle East, South and Southeast Asia, and the Far East from early times to c.1900.

HIST 318 History of Japan 1.
(3) (Restriction: Not open to students who have taken 101-318D or 101-293A) A survey of Japanese history and culture from earliest times to the 17th century, this course aims to provide students with a broad understanding of important themes in Japanese history.

HIST 319 The Scientific Revolution.
(3) (Prerequisite: A 200-level course in early modern history, or a course in philosophy, or permission of the instructor) The shift from the medieval to the modern view of man's place in the universe that took place between Copernicus and Newton and its intellectual and social implications.

HIST 320 European Thought and Culture 1.
(3) (Prerequisite: HIST 214 or HIST 215) (Restriction: Not open to students who have taken 101-320D) The cultural and intellectual history of Europe from the late Middle Ages to the 18th century traces the origins of the modern sense of self in popular culture and in the texts of Erasmus, Luther, Calvin, Descartes, Pascal, Voltaire and Rousseau.

HIST 321 European Thought and Culture 2.
(3) (Prerequisite: HIST 320 or consent of the instructor) (Restriction: Not open to students who have taken 101-320D) A cultural and intellectual history of Europe from the French Revolution to the present which traces the origins of the modern sense of self in popular culture and in the texts of Goethe, Comte, Marx and Engels, Nietzsche, Dostoevsky.
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Course Details</th>
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<tbody>
<tr>
<td>HIST 322</td>
<td>Canada: American Presence since 1939.</td>
<td>(3) (Prerequisite: HIST 202 and HIST 203 or consent of instructor) An examination of Canada’s relationship with the United States in the modern era. Emphasis will be placed upon diplomatic, military, cultural, and economic facets of this relationship.</td>
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<tr>
<td>HIST 323</td>
<td>History and Sexuality 1.</td>
<td>(3) Antiquity to Early Modern Europe. The cultural meanings and social institutions that create the historical context for sexual behaviours. Possible topics include: Greek homosexual and heterosexual culture; sex and citizenship; wives and concubines in the ancient world; Christianity and aestheticism; misogyny and gender in Medieval Europe; adultery and lineage.</td>
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<tr>
<td>HIST 324</td>
<td>History of Ireland.</td>
<td>(3) A history of Ireland from the pre-Norman period to 1691. The emphasis will be placed on political developments, but these will be considered in the light of their social, economic and intellectual background.</td>
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<tr>
<td>HIST 325</td>
<td>Renaissance-Reformation Europe.</td>
<td>(3) (Prerequisite: HIST 214 or permission of instructor) An examination of Western Europe from the late 14th to the end of the 16th century. Topics will include the Renaissance, in and outside Italy, the Reformation, the religious wars of the 16th century and the Scientific Revolution.</td>
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<tr>
<td>HIST 326</td>
<td>Russia from 1905 to Present.</td>
<td>(3) (Prerequisite: one 200-level course in History or political theory) 20th Century Russia, with particular attention to the rise and fall of the Soviet regime, Gorbachev’s Perestroika, and the problems and accomplishments of post-Soviet society under Yeltsin and Putin.</td>
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<tr>
<td>HIST 327</td>
<td>Age of the American Revolution.</td>
<td>(3) (Prerequisite: HIST 211 or permission of instructor.) Analyzes the origins, contingencies, and outcomes of the American Revolution. Spanning the decades from the 1760s to 1820s, it also seeks to place the Revolution in an Atlantic-wide context and to offer a foundation for studying American institutions.</td>
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<tr>
<td>HIST 328</td>
<td>The Qing Empire.</td>
<td>(3) (Prerequisite: One previous course in Chinese or Asian history or permission of instructor) Explores the origins and crises faced by China’s final dynasty. Topics include Manchu conquest and identity, questions of empire and expansion, central and provincial government, the place of women in Qing China, encounters with Europe and the Americas, the Opium Wars, the Taiping Rebellion, and Boxer uprising.</td>
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<tr>
<td>HIST 329</td>
<td>Science in the Medieval West.</td>
<td>(3) (Prerequisite: HIST 214 or permission of instructor.) (Restriction: Not open to students who have taken HIST 356 prior to W06.) The history of ideas about the physical world and its content, the nature of scientific thinking, and the possibilities of human intervention in the natural world held in Western Europe in the Middle Ages (ca. AD300-1500), with particular attention to their social, intellectual, cultural and religious context.</td>
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<tr>
<td>HIST 330</td>
<td>The United States Between the Wars.</td>
<td>(3) (Prerequisite: A course in U.S. history or permission of instructor.) The history of the United States from the Great War to the end of the 1940s. Social change and conflict, political conservatism, economic prosperity and the culture of consumption during the 1920s; the consequences of the Great Depression and the New Deal.</td>
</tr>
</tbody>
</table>

Always check at [www.mcgill.ca/study/](http://www.mcgill.ca/study/) for the most up-to-date information on whether a course is offered.

- Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
- Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
- Indicates that departmental approval/permission must be obtained by a student prior to registration.
- Denotes courses not available as Education electives.
- Denotes courses offered by the Faculty of Education which, if appropriate to the student’s program, may be included in the academic concentration.
- Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
HIST 343 Women in Post-Confederation Canada.
(3) (Prerequisite: HIST 203) This course examines women's contribution to the economic and social development of Canada as well as the changes in the image and status of women. Special emphasis will be on the relationship between women's roles in the private sphere and the public domain.

HIST 344 The Chinese Family in History.
(3) (Prerequisite: EAST 211 or HIST 208 or HIST 218 or permission of instructor.) (Restriction: Not open to students who have taken or are taking EAST 390.) Exploration of the Chinese family in history both as an institution - in its religious, legal, economic, political aspects - and as a lived reality.

HIST 345 History of Italian Renaissance.
(3) (Prerequisite: HIST 214 or consent of instructor) An introduction to the economy, society, politics and intellectual developments in Italy from approximately 1300 to the early 16th century.

HIST 346 France, 1814 to the Present.
(3) (Prerequisite: HIST 214 and HIST 215 or written consent of instructor) A study of the history of France from World War I to the present.

HIST 347 History and Sexuality 2.
(3) 1700 to the present, with a particular focus on Europe and North America. Possible topics include: patterns of fertility and sexual practice; prostitution; religion and sexuality; the medical and legal construction of sexualities; the rise of sexuality; gay liberation movements; queer politics.

(3) (Prerequisite: HIST 208 or HIST 218 or permission of instructor) An introduction to traditional Chinese ideas about human beings and their relationship with heaven and earth. Special emphasis on the history of medicine and the body, alchemy, geomancy and divination techniques, agriculture and sericulture, astronomy, and engineering and their relation to changing social and cultural formations.

HIST 349 Greece: Byzantium to Present.
(3) (2-3 film screenings held in a continuous 3-hour slot.) (Screenings will replace lecture hours the week of screenings.) The history of Modern Greece from 1821 to its present position as a member state of the European Union, with an emphasis on social, cultural and political developments.

HIST 350 Science and the Enlightenment.
(3) (Prerequisite: HIST 215 or permission of instructor.) Explores the relationship between the natural sciences and the eighteenth-century Enlightenment. Examination of works in post-Newtonian science as well as their broader cultural meaning, the history of material practices, the origins of social science, and the role of geography and international context beyond Western Europe.

HIST 351 Themes in U.S. History since 1865.
(3) (Prerequisite: any course in U.S. history or consent of instructor) Aspects of American history from the gilded Age through the Cold War era.

HIST 352 Japanese Intellectual History 2.
(3) (Prerequisite: one previous course in East Asian history, including Japanese history and Chinese history, or permission of instructor) (Restriction: Not open to students who have taken 101-337D) An overview of the history of Japanese thought and mentality from 1700 to the present. By examining not only texts of representative thinkers but also other (especially literary) materials, it aims at elucidating changing and continuing characteristics of the Japanese intellectual history.

HIST 353 History of Montreal.
(3) (Prerequisite: HIST 202 or HIST 203 or permission of the instructor.) The history of Montreal from its beginnings to the present day. Montreal's economic, social, cultural and political role within the French and British empires, North America, Canada, and Quebec; the city's linguistic and ethnic diversity.

(3) (Prerequisites: One course in European history or permission of instructor) An overview of the history of women in modern continental Europe, focusing on women's changing roles in the family and society at large, in the context of work, family life, education, and culture, and the changing notions of citizenship, femininity, and masculinity.

HIST 355 Topics in German History.
(3) (Prerequisite: HIST 234 and HIST 235 or a European survey course or consent of the instructor) (Restriction: Not open to students who have taken HIST 354 and HIST 355 prior to 200609.) Topics in German history from the confederation of two German Great Powers through revolution, confrontation, separation and consolidation to the destruction of the Dual Monarchy.

HIST 356 Medicine in the Medieval West.
(3) (Winter) (Prerequisites: HIST 214 or HIST 249 or HIST 380 or permission of instructor.) The history of ideas about the human body, disease and therapeutic and the diverse practices of medicine in western Europe in the Middle Ages (ca. AD 300-1500), with particular attention to their social, intellectual, cultural and religious context.

HIST 357 Religion and Canadian Society in Historical Perspective.
(3) (Prerequisite: HIST 202 and HIST 203) (Restriction: Not open to students who have taken 101-469) This course explores religious history of French and English Canada. The growth of various denominations, popular religion, Church/State relations, sectarian education, Protestant and Catholic cultures, missions among the Natives, forces of secularization. A reading knowledge of French is recommended.

HIST 358 Medieval to Early Modern China.
(3) (Prerequisite: HIST 208 or permission of instructor) (Restriction: Not open to students who have taken 101-308D) This course studies the changes in Chinese society from the age of the aristocracy to the dominance of the literati; the rise of Buddhism and religious Daoism, the resurgence of Confucianism; and the impact of foreign conquests on the development of Chinese traditional culture.

HIST 359 History of Japan 2.
(3) (Restriction: Not open to students who have taken 101-294B or 101-318D) A survey of Japanese history and culture from the 17th century to the present. This course aims to provide students with a broad understanding of important themes in Japanese Civilisation.

HIST 360 Latin America since 1825.
(3) Themes in the political, economic, and social development of Latin America since the wars of independence. Emphasis on the domestic history of the region, with some attention to relations with the United States and Europe.

HIST 361 The Canadian West to 1905.
(3) (Prerequisite: HIST 202 and HIST 203) The development of what is now the Canadian West from the 17th century to the entry of Saskatchewan and Manitoba into confederation. Topics include: culture contact between native and European, the fur trade, entry of the West into confederation and its evolution from colonial to provincial status.

HIST 362 The Canadian West since 1905.
(3) (Prerequisite: HIST 203 or consent of instructor) An examination of significant themes in the history of British Columbia and the Prairie Provinces since 1905. Topics include immigration, economic development, regional protest movements and class conflict within the West itself.

HIST 363 Canada 1870-1914.
(3) (Prerequisite: HIST 202 and HIST 203 or permission of instructor) This course will examine social, economic, political and cultural aspects of Canadian society between 1870 and 1914. Topics covered will include aboriginal peoples, European settlement of the West, provincial rights, the national policy, social reform movements, industrialization, immigration and the rise of cities.
HIST 364 Canada 1914-1945.
(3) (Prerequisite: HIST 202 and HIST 203 or permission of instructor) This course will examine Canada and Canadian society between 1914 and 1945. It will focus on the social, political, economic, and cultural impact of the two World Wars and the economic crisis of the 1930s. Among the topics will be Canadian external relations, political and social protest, popular culture, demographic changes and prohibition.

HIST 365 17th - 18th C. Western Europe.
(3) (Prerequisite: HIST 214 or consent of instructor) (Restriction: Not open to students who have taken 101-325D) A comparative analysis of the major states of Western Europe: Absolutism and its alternatives; religious and scientific thought; classical and enlightenment cultures; international and colonial rivalries. Special attention will be placed on social and economic changes between the 1630s and the late 18th century.

HIST 366 Themes in Latin American History 1.
(3) (Prerequisite: HIST 309 or HIST 360 or permission of the instructor.) (Note: Topics will vary from year to year.) Exploration of a specific topic in the history of Latin America and the Caribbean, 1492 to the present.

HIST 367 Canada since 1945.
(3) (Prerequisite: HIST 202, HIST 203) Elements of Canada's political, social, economic, and cultural history since World War II. Topics will include constitutional questions, gender and class issues, the role of the state, regionalism, consumer society, the Quiet Revolution, and nationalism in Canada.

HIST 368 Greek History: Classical Period.
(3) (Prerequisite: HIST 205 or HIST 231 or permission of instructor.) The Classical period of Greek history, from the end of the Persian wars to the death of Alexander the Great (479-323 B.C.).

HIST 369 Greek History: Early Greece.
(3) (Prerequisite: HIST 205 or HIST 231 or permission of instructor.) Historical study of the period from the Mycenaean Age to the end of the Archaic Age.

(3) (Prerequisite: HIST 203 or consent of the instructor) An examination of how politics evolved in Canada's parliamentary system from campaigns to media management, including party systems, ideology, the role of leadership and the growing role of the state.

HIST 371 American Civil Rights 1877-1940.
(3) (Prerequisite: any course in U.S. history or consent of instructor) The social, economic, political, and constitutional history of citizenship and civil rights in the United States, from the end of Reconstruction through the 1930s. Emphasis on segregation and disenfranchisement; immigration restrictions, americanization and national identities; civil rights movements and organizations; women's suffrage; voting rights and representation.

HIST 372 The Low Countries: 14th - 17th Century.
(3) (Prerequisite: HIST 214 or consent of the instructor) This course will study the Low Countries from their unification under the Valais Dukes of Burgundy until Holland's "Golden Age" in the 17th century. Topics include: relations with France and England during the Valois period; the Burgundian court; the Reformation; the Dutch Revolt; Dutch economy and culture.

HIST 373 Canadian Labour History.
(3) (Prerequisite: HIST 203 or equivalent or consent of instructor) (Restriction: Not open to students who have taken HIST 353) This course explores themes in labour and working class history in Canada.

HIST 374 Roman History: Early Empire.
(3) (Prerequisite: HIST 205 or HIST 231 or permission of instructor.) The history of the Roman Empire from Augustus to Marcus Aurelius.

HIST 375 Roman History: Later Empire.
(3) (Prerequisite: HIST 205 or HIST 231 or permission of instructor.) The history of the Roman Empire from Marcus Aurelius to Justinian.

HIST 376 Roman & Greek Social History.
(3) (Prerequisite: HIST 205 or HIST 231 or permission of instructor.) Roman and Greek social history including the family and domestic space, economic structures, and religious beliefs.

HIST 377 The United States, 1940-1965.
(3) (Prerequisite: any course in U.S. history or consent of instructor) Major events in politics and international affairs, culture and society, and the economy in the U.S. during and after World War II. Topics include: The War and American society; the first years of the Cold War; economic prosperity and social change; the civil rights movement; Vietnam to 1965.

HIST 378 Roman & Greek Social History.
(3) (Prerequisite: HIST 205 or HIST 231 or permission of instructor.) Roman and Greek social history including the family and domestic space, economic structures, and religious beliefs.

HIST 379 Greek History: Hellenistic Period.
(3) (Prerequisite: HIST 205 or HIST 231 or permission of instructor.) The Hellenistic Greek world from Alexander the Great to the period of the Roman conquest.

HIST 380 Western Europe: The Middle Ages.
(3) (Restriction: Not open to students who have taken 101-380D) History of Western Europe from the later Roman Empire through the 15th century: sub-roman and Carolingian civilization, feudal monarchy; the Church and the lally; domestic life and social institutions; cultural developments.

HIST 381 Colonial Africa: Health/Disease.
(3) (Prerequisite: HIST 200 and HIST 201 or HIST 349 or permission of the instructor) A study of the impact of disease on African societies over the last three centuries. Topics include: the efforts of Africans to control their ecology, and to maintain their own medical traditions; the wider African responses to Western bio-medicine, and the relationship of disease to nutrition, demography, and public health.

HIST 382 History of South Africa.
(3) (Prerequisite: HIST 200 and HIST 201) History of South Africa from precolonial times to the present. Topics include: precolonial societies; British and Dutch colonialism; slavery in colonial South Africa; the Zulu kingdom; mining capitalism; the Boer War; Afrikaner nationalism; apartheid; the anti-apartheid struggle; music, religion, and art; challenges of the post-apartheid state.

HIST 383 Eighteenth-Century Britain.
(3) (Prerequisite: HIST 215 or permission of instructor.) (Restriction: Not open to students who have taken HIST 383 and HIST 384 prior to 2005.) Cultural, intellectual, political, economic and social history of Britain and Ireland in the eighteenth century; the era of the creation of the United Kingdom and the rise of a great commercial and imperial power.

HIST 384 Nineteenth-Century Britain.
(3) (Prerequisite: HIST 215 or permission of instructor) (Restriction: Not open to students who have taken HIST 384 prior to 2005.) Cultural, intellectual, political, economic and social history of Britain and Ireland in an era of unprecedented economic and cultural change as the United Kingdom became the world's first industrial nation and leading imperial power.

HIST 385 Twentieth-Century Britain.
(3) (Prerequisite: HIST 215 or permission of instructor) (Restriction: Not open to students who have taken HIST 385 and HIST 386 prior to 2003) From a range of perspectives, including cultural, intellectual, political, economic and social history, this course examines Britain from the height of its power, through two world wars, the building of a welfare state,
the dissolution of Empire and entry into Europe, to the start of the 21st century. consensus, decolonisation, immigration, culture and society, Northern Ireland, Scottish and Welsh nationalism, the European Union.

**HIST 387 The First World War.**
(3) A world-wide political, social, economic, cultural and military survey, from the origins of the Great War to the Treaty of Versailles.

**HIST 388 The Second World War.**
(3) A world-wide political, social, economic, cultural and military survey, from the Treaty of Versailles to the first years of the Cold War.

- **HIST 390 Eighteenth-Century France.**
  (3) A reading knowledge of French is highly recommended.
  (Prerequisite: HIST 214 or HIST 215 or HIST 225 or permission of Instructor) The political, social, and cultural history of France, from the accession of Louis XV (1715) to the rise of Napoleon (1799), including the French Revolution.

- **HIST 391 Roman History: Republic.**
  (3) Prerequisite: HIST 205 or HIST 231 or permission of instructor.
  (Restriction: Not open to students who have taken 101-451) History of the Roman Republic from its foundation through the death of Julius Caesar.

**HIST 392 The United States since 1965.**
(3) Prerequisite: any course in U.S. history or consent of the instructor) Major events in politics and international affairs, culture and society, and economy in the U.S. since 1965. Topics include: social and political upheaval 1965 - 1975; Vietnam to 1975; conservative politics; Nixon and Watergate; economic change in the 1970s and 1980s; presidential leadership from Carter on.

- **HIST 393 Civil War and Reconstruction.**
  (3) Prerequisite: any course in U.S. history or permission of instructor) (Restriction: Not open to students who have taken 101-431) The causes of the American Civil War; the social, economic, political and military forces that shaped the conflict, attempts to restructure race relations, Southern and American societies after the war.

- **HIST 394 Stuart Britain and Ireland.**
  (3) Prerequisite: HIST 204 or HIST 214 or permission of instructor) A study of Britain and Ireland during the seventeenth and early eighteenth centuries; topics include the nature of early British society, the outbreak of the civil wars of the 1640s, the Restoration of the monarchy, and the changes in political ideas over the period.

- **HIST 395 Canadian Military Experience.**
  (3) Prerequisite: CANS 200 or HIST 203 or permission of instructor) (Restriction: Not open to students who have taken 106-406) Canada's military experience since European contact. The course explores social, economic, technological and political themes as well as more traditional themes of military history.

- **HIST 396 Disease in Africa Since 1960.**
  (3) Prerequisite: HIST 200 and HIST 201 or HIST 349 or permission of the instructor) This course examines the negatives and positives of African health since independence: the rise of new pathogens, especially HIV/AIDS, and the revitalization of old ones, such as drug resistant tuberculosis and malaria. Also examined are the growth of health infrastructure, and international successes such as the eradication of smallpox.

- **HIST 397 Canada: Ethnicity, Migration.**
  (3) Prerequisite: HIST 202 and HIST 203 or permission of the instructor) (Restriction: Not open to students who have taken HIST 423) Immigration, ethnicity and race in Canada in the nineteenth and twentieth centuries. Topics will include the migration process, government policy and legislation, urban and rural migration, acculturation, nativism and multiculturalism.

- **HIST 398 Topics in Italian History.**
  (3) Prerequisite: HIST 214)

- **HIST 399 History and Historical Methods.**
  (3) Prerequisite: 6 credits of History) The nature and functions of history; changing conceptions of time and of the past; techniques historians use to find and appraise evidence; methods of reconstructing the past. Emphasis will be given not only to documentary sources but also to the range of techniques used by historians to find and appraise evidence.

- **HIST 399D1 (1.5), HIST 399D2 (1.5) History and Historical Methods.**
  (Students must register for both HIST 399D1 and HIST 399D2) (No credit will be given for this course unless both HIST 399D1 and HIST 399D2 are successfully completed in consecutive terms) (HIST 399D1 and HIST 399D2 together are equivalent to HIST 399) The nature and functions of history; changing conceptions of time and of the past; techniques historians use to find and appraise evidence; methods of reconstructing the past. Emphasis will be given not only to documentary sources but also to the range of techniques used by historians to find and appraise evidence.

- **HIST 400 Ancient Greece, Rome and China.**
  (3) Prerequisite: ARLE 101 or HIST 205 or HIST 208 or permission of instructor) A comparative analysis of the political cultures of ancient Greece, Rome and China, c. 500 BCE to 500 CE, exploring societal distinctions through topics such as the role of historical traditions, power configurations, public oratory, elite representation, funerary rites and political spaces.

- **HIST 401 Topics: Medieval Culture and Society.**
  (3) Prerequisite: HIST 214 or HIST 380 or consent of instructor) Selected topics in the intellectual and cultural history of the Middle Ages. Emphasis on modern critical approaches to medieval culture, including literature, the supernatural, religious experience.

- **HIST 403 History of Quebec Institutions.**
  (3) Prerequisite: HIST 203 or consent of instructor) Analysis of institutional structures in Quebec with emphasis on the 19th century. Particular attention will be given to legal and property institutions in transition.

- **HIST 405 European Cultural History 1.**
  (3) Prerequisite: HIST 214 and HIST 215, or a course in European intellectual history or consent of the instructor) A survey of 19th century French and European cultural/intellectual history. The sequel to this course is HIST 415.

- **HIST 406 Petrine and Catherinian Russia.**
  (3) Prerequisite: A prior course in Russian or European history) The transformation of Russian society by Peter the Great and the problems and achievements of Russia's Golden Age under the enlightened despotism of Catherine II and of her son.

- **HIST 407 Topics in Ancient History.**
  (3) Prerequisite: 3 credits in Ancient history at the 300-level or permission of instructor) (Restriction: Not open to Honours students in History.) An in-depth look at various topics in ancient history.

- **HIST 408 Colonialism and Native Peoples.**
  (3) Prerequisite: HIST 202) (Restriction: Not open to students who have taken 101-580D) The nature and consequences of encounters between American native peoples and Europeans.

- **HIST 409 Themes in Latin American History 2.**
  (3) Prerequisites: HIST 309 or HIST 360 and at least one other course in the Latin America area or permission of instructor.) (Note: Topics will vary from year to year.) In-depth discussion and research on a circumscribed topic in the history of Latin America and the Caribbean, 1492 to the present.

- **HIST 410 Topics in History of Science.**
  (3) Prerequisite: A prior course on history of science or HPSC 300 or permission of Instructor) (Restriction(s): Not open to U0 or U1 students) (Themes and/or periods) vary year to year.) Specific theme in the history of science, such as scientific instruments, experimental practices, uses of the body, knowledge and museums, scientific institutions, or science and empire.
HIST 412 Women and Gender in Modern Britain.  
(3) (Prerequisite: HIST 215 or a course in British history or permission of instructor) Women and gender in modern Britain (1850 on). Topics include early feminist political agitation, including the suffrage movement; working-class women; changing notions of gender, sexuality and women's role; women and empire.

HIST 413 Independent Reading.  
(3) (Prerequisite: Written permission) (Restriction: Open to History Major Concentration students only. Students may register in this course only once) Exceptionally, and under the direction of a member of staff, advanced and highly qualified students who have an extensive background in the proposed area of study, may pursue this independent study.

HIST 414 Canadian Cultural History.  
(3) (Prerequisite: HIST 202 or HIST 203 or permission of the instructor.) A cultural history of Canada, with culture defined in both the anthropological sense as comprising an entire way of life—material, intellectual and spiritual—and in the familiar sense of embodying the life of the intellect and the arts.

HIST 415 European Cultural History 2.  
(3) (Prerequisite: HIST 214 and HIST 215 or a course in European intellectual history or written consent of instructor) A survey of 20th century French and European cultural/intellectual history.

HIST 416 British and French Identity.  
(3) (Prerequisite: A 300-level course in British or French History or permission of instructor.) Examines the close yet conflictual histories of Britain and France through the way each formed and projected national identities, the way in which those identities changed over time, and the wider impact these various identities have had.

HIST 417 British & Irish Nationalisms.  
(3) (Prerequisite: A course in modern British history or permission of the instructor.) The history of Irish, Scottish, Welsh and English nationalisms in the British context from 1688 to the present.

HIST 418 Topics: Atlantic World.  
(3) (Prerequisites: any two of the following: HIST 200, HIST 202, HIST 211, HIST 214, HIST 309 or permission of instructor) (Restriction: Enrolment limit 25.) Exploration of a specific theme in Atlantic history, 1500 to 1850.

HIST 419 Central America.  
(3) (Prerequisite: HIST 309, HIST 360 or permission of instructor) (Restriction: Not open to students who have taken 101-419D) The study of historical roots of the regional crisis of the 1980s, with particular attention to Nicaragua, El Salvador and Guatemala.

HIST 420 Gender and Sexuality in Modern China.  
(3) (Prerequisite: A 300-level course in the History of China or Gender/Sexuality or permission of instructor.) The history of gender and sexuality in modern China. Topics include Chinese femininities and Chinese masculinities, theories of sexuality, and changing conceptions of gender identity under Confucianism, Western imperialism, and socialism.

HIST 421 Topics in Atlantic History.  
(3) (Prerequisite: HIST 202 or HIST 203 or permission of instructor.) Selected topics in Atlantic and intellectual history of Britain and Ireland, focusing on discussion of primary texts.

HIST 422 The Hasidic Movement.  
(3) (Prerequisite: HIST 307 or a course in East-European history or consent of instructor) A historical examination of the history of the Hasidic Movement from its beginnings in 18th-century Poland to the present. Although emphasis will be placed on the social history of the movement, doctrinal developments will be examined as well.

HIST 423 Topics: British Cultural History.  
(3) (Prerequisite: HIST 215 or a course in British history or permission of instructor) Selected topics in intellectual and cultural history of Britain and Ireland, focusing on discussion of primary texts.

HIST 424 Gender, Sexuality & Medicine.  
(3) (Prerequisite: A 300-level History course in gender, sexuality or medicine or permission of instructor.) Gender, sexuality, and medicine since the colonial era, with a focus on North American experience. Topics will include reproductive medicine (puberty, childbirth, fertility control, menopause), changing perceptions of men's and women's health needs and risks, and ideas about sexual behaviour and identity.

HIST 425 European Food History.  
(3) (Prerequisite: HIST 215 or permission of instructor.) A history of food and drink in European history. Topics include: feasts and famines; the introduction of new foods and drinks from Asia and the Americas; table manners and the origins of the restaurant.

HIST 426 Topics: British Cultural History.  
(3) (Prerequisite: HIST 215 or a course in British history or permission of instructor) Selected topics in intellectual and cultural history of Britain and Ireland, focusing on discussion of primary texts.

HIST 427 The Hasidic Movement.  
(3) (Prerequisite: HIST 307 or a course in East-European history or consent of instructor) A historical examination of the history of the Hasidic Movement from its beginnings in 18th-century Poland to the present. Although emphasis will be placed on the social history of the movement, doctrinal developments will be examined as well.

HIST 428 History of the Book in Britain.  
(3) (Prerequisite: A 300-level course in British history or permission of instructor.) The theory and the practice of using books, manuscripts and periodicals in Early Modern British history. Topics include literacy and orality; the print revolution; censorship; readers and reading practices; newspapers and journalism; the origins of scientific persuasion and intellectual property rights.

HIST 429 Topics: Canadian Family History.  
(3) (Prerequisite: HIST 202 or HIST 203 or permission of instructor.) This course will examine themes in the history of the Canadian family from 1850. Historical study reveals the family as a diverse, changing, social institution. Marriage, childhood, sexuality, and the state will come under examination and the Canadian experience will be compared to that of the U.S.

HIST 430 Topics in Modern Medicine.  
(3) (Prerequisites: HIST 249 (or HIST 349 prior to Winter 2006) or permission of the instructor.) Various topics in the history of medicine in the 19th, 20th and/or 21st centuries will be explored through discussion of primary and secondary historical sources.

HIST 431 Topics in U.S. History.  
(3) (Prerequisite: By permission of instructor.) Various topics in United States history.

HIST 432 The Atlantic Provinces.  
(3) (Prerequisite: HIST 202 and HIST 203 or consent of the instructor) Themes and topics in the history of the Canadian Atlantic Provinces from the European settlement to Present.

HIST 433 British Queer History.  
(3) (Prerequisites: HIST 215 or a course in British History or permission of instructor.) (Restrictions: Not open to students who have taken HIST 426 in 200209.) An investigation of the changing historical construction of “deviant” and “normal” sexualities in Britain since 1700, and how queer women and men discovered ways of surviving and perhaps even flourishing in the face of persecution and hostility from the state, the churches and the medical profession.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

- Denotes courses taught only in alternate years.
- Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
- Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
- Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
HIST 434 British North America 1760-1867.
(3) (Prerequisite: An introductory course in history or consent or instructor) This course will study the social-cultural and political development of British North American colonies.

HIST 435D1 (3), HIST 435D2 (3) Germany in the 20th Century.
(Prerequisite: HIST 234 and HIST 235 or an equivalent course or consent of instructor) (Students must register for both HIST 435D1 and HIST 435D2.) (No credit will be given for this course unless both HIST 435D1 and HIST 435D2 are successfully completed in consecutive terms) First World War: national and international aspects; Weimar: economic crisis, and nationalism; rise of Hitler; structure of the National Socialist state; Blue-print for World Power; Second World War: attempts to overthrow Hitler; the revolt of conscience; defeat; the Cold War and German unity; the post-War era.

HIST 436 Topics: European History.
(3) (Prerequisite: Permission of instructor.) An in-depth look at particular aspects of European history.

HIST 438 Topics in Cold War History.
(3) (Prerequisite: HIST 304 or other 300-level course relevant to the current topic of the course or permission on the instructor.) One large aspect of Cold War, either thematic or regional, will be explored.

HIST 439 History of Women in China.
(3) (Prerequisite: a previous course in Chinese history) This course examines the changing roles of women in traditional and modern China. Topics include political, social, and legal status, sexuality and medicine, religion and culture.

HIST 440 Fiction and History.
(3) (Prerequisite: 6 credits at the 300 level in either history or literature) This course examines why and how books are classified as fiction or history. Topics include: social expectations and uses of literature; evidence and verification; the author as authority. Readings include history and fiction from various historical periods, and relevant scholarship.

HIST 441 Topics: Culture and Ritual in China.
(3) (Prerequisite: HIST 208 and HIST 218 and permission of instructor) An examination of selected aspects of the cultural and intellectual life of China. Topics vary from year to year, but include the history of popular religion, Chinese science and medicine, the esoteric arts including divination practices, law, and the influence of ideas in the production of Chinese culture.

HIST 442 Asian Diaspora: Chinese Overseas.
(3) (Prerequisite: One previous course in Chinese or Asian history or permission of instructor) The contexts and causes of Chinese emigration; historical patterns of migration; Overseas Chinese communities on five continents, with emphasis on Southeast Asia and North America; alienation and identity in Chinatown; relations between the Overseas Chinese and China.

HIST 444 British Colonies: Africa and Asia.
(3)

HIST 445 Late Imperial China.
(3) (Prerequisite: HIST 208 or HIST 218) An introduction to the social and economic history of Late Imperial China, focusing on the Ming and early to mid Qing Dynasties (1368 - 1800), and current interpretations thereof. Was this a discrete period in Chinese history? If so, why.

HIST 447 The Natural History of America.
(3) (Prerequisite: HIST 211 or permission of the instructor.) Examination of the ways in which interpretations of the natural world in the Americas were constructed by European travellers, colonial settlers and others. Emphasis primarily on natural histories of colonial British America, but coverage includes comparison across national and regional boundaries within the early modern Atlantic world.

HIST 448 Women, Gender and Sexuality in the Middle East.
(3) (Prerequisite: A course on women, gender or sexuality or permission of instructor.) A focus on women in the history of the late-19th- and 20th-Century Middle East, and on the ways in which gender analysis and sexuality illuminate the history of national and religious communities. Topics such as: education, masculinity, sexuality, Western representations of Middle Eastern women, and gender and the nation.

HIST 449 Medicine in the Ancient World.
(3) (Prerequisite: HIST 349 or an introductory course in Ancient Greek or Roman history) The evolution of ideas about the human body, disease, and therapeutics, and the diverse practices of medicine in Graeco-Roman antiquity (ca 800BC - ca 600CE), with particular attention given to their social, political, cultural and religious context.

HIST 450 Ancient History Methods.
(3) (Prerequisite: 3 credits at the 300-level in Ancient history or permission of the instructor.) Advanced study of ancient Mediterranean city-states, focusing on their urban setting and political, social, economic, and cultural institutions.

HIST 452 Medicine in Europe 1500-1700.
(3) (Prerequisites: HIST 214 or HIST 249 and a 300-level course in History or permission of instructor.) (Priority is given to students in Honours History, students registered for the Minor in Social Studies of Medicine, and graduate students in History, Medical Anthropology, and Medical Sociology) The history of the evolution of ideas about the human body, disease and therapeutics and the diverse practices of medicine in Western Europe in the 16th and 17th centuries, with particular attention to their social, political, cultural and religious context.

HIST 453 History of Revolution in Europe.
(3) (Prerequisite: HIST 215 or permission of instructor) The evolution of the concept and phenomenon of revolution from the 1640s in England to 1899 in eastern Europe. How the experiences of 1789, 1848, and 1917 changed the theory and practice of revolution.

HIST 456 Russian Intellectual History 1825-1917.
(3) (Prerequisite: HIST 236 or a course in European intellectual history, or consent of instructor) The history of the Russian intellectual tradition and the Bolshevik Revolution. Discussion of the Russian influence on European and American intellectuals in the 19th century.

HIST 457 Topics in Medical History.
(3) (Prerequisite: HIST 349 or HIST 356 or permission of instructor) This course explores different topics in medical history. Topics to be explored include the role of medicine from ancient to modern times.

HIST 458 Modern Medicine: Seminar.
(3) (Restriction: Not open to students who have taken 101-459D) The emergence of scientific medicine, medical professionalism, the development of public health and the process of medical specialization since 1700.

HIST 459 Modern Medicine: Research.
(3) (Prerequisite: HIST 458) (Restriction: Not open to students who have taken 101-459D) (Priority given to students in Honours History and students registered for the Minor in Social Studies of Medicine.) Supervised design, research, writing, and discussion of a major research paper on a theme in the history of modern medicine since 1700.

HIST 460 Milton in Myth and History.
(3) (Prerequisite: a 200-level course on modern English or European history or literature, or permission of instructor) The great poet-revolutionary as construed or caricatured by contemporaries, and posthumous fans and foes such as Voltaire, Dr Johnson, the Romantics, Whigs, Unitarians, Victorian feminists, Marxists, Bolsheviks, and ex-Marxists.

HIST 461D1 (3), HIST 461D2 (3) Topics in Modern U.S. History.
(Prerequisite: any course in American History or consent of instructor) (Students must register for both HIST 461D1 and HIST 461D2) (No credit will be given for this course unless both HIST 461D1 and HIST 461D2 are successfully completed in consecutive terms)
HIST 462D1 (3), HIST 462D2 (3) Topics: Canadian Conservatism.
(Prerequisite: HIST 202 and HIST 203. Reading knowledge of French is required) (Students must register for both HIST 462D1 and HIST 462D2.) (No credit will be given for this course unless both HIST 462D1 and HIST 462D2 are successfully completed in consecutive terms) A critical examination of political, intellectual and institutional manifestations of conservatism in Canada from New France to Reform Party.

HIST 463D1 (3), HIST 463D2 (3) Topics: History of Women in Canada.
(Prerequisite: HIST 203 or consent of instructor) (Restriction: Not open to students who have taken HIST 493) (Students must register for both HIST 463D1 and HIST 463D2.) (No credit will be given for this course unless both HIST 463D1 and HIST 463D2 are successfully completed in consecutive terms) A research seminar on the history of women in Canada since Confederation. Students will get familiar with primary sources and are expected to produce a major research paper in the second term.

HIST 464D1 (3), HIST 464D2 (3) Topics: Latin American History.
(Prerequisite: HIST 309 or consent of instructor) (Students must register for both HIST 464D1 and HIST 464D2.) (No credit will be given for this course unless both HIST 464D1 and HIST 464D2 are successfully completed in consecutive terms) This seminar counts as part of the North American concentration for Honours students.

HIST 465D1 (3), HIST 465D2 (3) Seminar: Italian Renaissance.
(Prerequisite: HIST 214 or consent of instructor) (Students must register for both HIST 465D1 and HIST 465D2.) (No credit will be given for this course unless both HIST 465D1 and HIST 465D2 are successfully completed in consecutive terms)

HIST 466 Seminar: Medieval Medicine
(3) Models of the body, disease and medical intervention current in western Europe between 400 and 1500 AD will be examined through analysis of primary sources in translation, and modern historical scholarship. The sequel to this course is HIST 496.

HIST 469D1 (3), HIST 469D2 (3) Topics in Canadian Religious History.
(Prerequisite: HIST 202 and HIST 203, plus HIST 357. A reading knowledge of French is highly recommended) (Students must register for both HIST 469D1 and HIST 469D2.) (No credit will be given for this course unless both HIST 469D1 and HIST 469D2 are successfully completed in consecutive terms)

HIST 470D1 (3), HIST 470D2 (3) Topics: Historical Interpretation.
(Students must register for both HIST 470D1 and HIST 470D2.) (No credit will be given for this course unless both HIST 470D1 and HIST 470D2 are successfully completed in consecutive terms)

HIST 471D1 (3), HIST 471D2 (3) Canadian Immigration History.
(Prerequisite: HIST 203 or permission of instructor) (Students must register for both HIST 471D1 and HIST 471D2.) (No credit will be given for this course unless both HIST 471D1 and HIST 471D2 are successfully completed in consecutive terms)

(3) (Prerequisites: A 200- or 300-level course in Russian or East European history or permission of instructor.) The Soviet concentration camps, set up as a system of repression after the 1917 October Revolution, lasted until the collapse of the USSR.

HIST 476D1 (3), HIST 476D2 (3) Seminar: Topics in Russian History.
(Prerequisite: HIST 476D1 and HIST 476D2.) (No credit will be given for this course unless both HIST 476D1 and HIST 476D2 are successfully completed in consecutive terms)

HIST 477D1 (3), HIST 477D2 (3) Seminar in Jewish History.
(Students must register for both HIST 477D1 and HIST 477D2.) (No credit will be given for this course unless both HIST 477D1 and HIST 477D2 are successfully completed in consecutive terms)

HIST 478 Pre-modern Chinese Law and Society.
(3) (Prerequisite: Any 300-level course in Chinese history or permission of the instructor.) The history of Chinese law and society from early pre-imperial to late imperial times. Themes include the philosophical basis of Chinese law; development of different forms of legislation; practice of pre-modern law; law and social and political change; military law; legal cases translated from primary sources.

HIST 482D1 (3), HIST 482D2 (3) Seminar: Antiquity to Reformation.
(Students must register for both HIST 482D1 and HIST 482D2.) (No credit will be given for this course unless both HIST 482D1 and HIST 482D2 are successfully completed in consecutive terms)

HIST 483D1 (3), HIST 483D2 (3) History of Montreal.
(Prerequisite: HIST 202 and HIST 203 and other courses on French Canada or consent of instructor) (Students must register for both HIST 483D1 and HIST 483D2.) (No credit will be given for this course unless both HIST 483D1 and HIST 483D2 are successfully completed in consecutive terms) Particular attention will be paid to Japanese responses to the impact of Western culture from the sixteenth century, and to aspects of Japanese intellectual history.

HIST 486D1 (3), HIST 486D2 (3) Topics: African Social History.
(Prerequisite: HIST 200 or consent of instructor) (Students must register for both HIST 486D1 and HIST 486D2.) (No credit will be given for this course unless both HIST 486D1 and HIST 486D2 are successfully completed in consecutive terms)

HIST 489D1 (3), HIST 489D2 (3) Seminar in Japanese History.
(Prerequisite: HIST 208 or HIST 218 or consent of instructor) (Students must register for both HIST 489D1 and HIST 489D2.) (No credit will be given for this course unless both HIST 489D1 and HIST 489D2 are successfully completed in consecutive terms)

HIST 490D1 and HIST 490D2 are successfully completed in consecutive terms)

HIST 491D1 (3), HIST 491D2 (3) Honours Tutorial 1.
(Students must register for both HIST 490D1 and HIST 490D2.) (No credit will be given for this course unless both HIST 490D1 and HIST 490D2 are successfully completed in consecutive terms)

HIST 491D1 (3), HIST 491D2 (3) Honours Tutorial 2.
(Students must register for both HIST 491D1 and HIST 491D2.) (No credit will be given for this course unless both HIST 491D1 and HIST 491D2 are successfully completed in consecutive terms) (HIST 491D1 and HIST 491D2 together are equivalent to HIST 491)
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HIST 492D1 (3), HIST 492D2 (3) Topics in Comparative History. (Students must register for both HIST 492D1 and HIST 492D2.) (No credit will be given for this course unless both HIST 492D1 and HIST 492D2 are successfully completed in consecutive terms) A research seminar on aspects of History from early to late in the present, with emphasis on social history.

HIST 497D1 (3), HIST 497D2 (3) Topics in Chinese History. (Prerequisite: HIST 208 and HIST 218 and a 300-level course in Chinese History or permission of instructor) (Students must register for both HIST 497D1 and HIST 497D2.) (No credit will be given for this course unless both HIST 497D1 and HIST 497D2 are successfully completed in consecutive terms) A research seminar on aspects of Chinese History from early to late in the present, with emphasis on social history.

HIST 499 Internship: History. (3) (Restriction: Open only to students who have taken HIST 466) Supervised design, research, writing, and discussion of a theme in the history of western European medicine, 400 - 1500 AD.

HIST 500 World History: Seminar. (3) (Prerequisite: Permission of instructor) (Restriction: Open only to students who have taken HIST 552 in the previous semester.) Supervised design, research for and writing of a substantial paper on a theme in the history of world history.

HIST 510 Environmental History of Latin America (Field). (3) (Restriction: Open to students who have taken HIST 510) Supervised design, research, and writing of a substantial paper on a theme in the history of Latin America, with an emphasis on the historical perspective to contemporary environmental issues, including human-nature interactions over different scales of time in Latin America (with an emphasis on neo-tropical environments) and the application of the historical knowledge.

HIST 525 Women, Work and Family in Global History. (3) (Restriction: Open to students who have taken HIST 525) Supervised design, research, and writing of a substantial paper on a theme in the history of international relations.

HIST 528 Indian Ocean World Slave Trade. (3) (Prerequisites: HIST 200 or HIST 213 or permission of instructor.) (Restriction: Open only to students who have taken HIST 467.) The origins, structure and impact of the Indian Ocean World slave trade from early times to the present day. Enslavement, the trading structure, slave functions, reactions to slavery, emancipation and 'slave' diaspora. Comparisons will be made to the Atlantic slave system.

HIST 530 U.S. Foreign Relations. (3) (Prerequisites: one course in U.S. history or permission of instructor.) (Restriction: Open only to students who have taken HIST 530) The history and historiography, approaches and interpretations, of American foreign relations from the pre-Revolutionary era to the present.

HIST 550 Ancient History: Seminar. (3) (Fall) (Prerequisite (Undergraduate): 6 credits at the 300 or 400 level in Ancient history or permission of instructor) (Restriction: Honours students or advanced undergraduates who have permission of the instructor. Also open to graduate students.) Topics in ancient Mediterranean History, focusing on Greek and/or Roman society.

HIST 551 Ancient History: Research. (3) (Winter) (Prerequisite: HIST 550) (Restriction: Honours students or advanced undergraduates who have permission of the instructor. Also open to graduate students.) Research paper on a theme in ancient Mediterranean history.

HIST 552 International Relations: Seminar. (3) (Prerequisite: Permission of instructor.) (Restrictions: Restricted to Graduate students and Honours students or advanced students who have permission of the instructor.) Readings on and discussion of a theme in the history of international relations.

HIST 553 International Relations: Research. (3) (Prerequisite: HIST 552) (Restrictions: Open only to students who have taken HIST 552 in the previous semester.) Supervised design of, research for and writing of a substantial paper on a theme in the history of international relations.

HIST 554 Colonial America: Seminar 1. (3) (Prerequisite: Permission of instructor) Readings on and discussion of a theme in the history of modern Britain, with an emphasis on the historical context of British colonialism in North America. Also open to graduate students.) Research paper on a theme in the history of modern Britain.

HIST 555 Colonial America: Seminar 2. (3) (Prerequisite: HIST 554) (Restrictions: Open only to students who have taken HIST 554 in the previous semester. Not open to students who have taken HIST 481D1/D2.) Supervised design, research and writing of a substantial research paper on a theme in the history of Colonial America.

HIST 556 World History: Seminar. (3) (Prerequisite: Permission of instructor.) (Restrictions: Restricted to Graduate students and Honours students or advanced students who have permission of the instructor) Readings on and discussion of a theme in world history.

HIST 557 World History: Research. (3) (Prerequisite: HIST 556) (Restrictions: Open only to students who have taken HIST 556 in the previous semester.) Supervised design of, research for and writing of a substantial paper on a theme in world history.

HIST 560 Modern Britain: Seminar 1. (3) (Prerequisite: Permission of the instructor.) (Restrictions: Honours students or advanced undergraduates. Not open to students who have taken HIST 560 in the previous semester.) Supervised design, research and writing of a substantial research paper on a theme in modern British history.

HIST 561 Modern Britain: Seminar 2. (3) (Prerequisite: HIST 560) (Restrictions: Not open to students who have taken HIST 484D1/D2 and/or HIST 634D1/D2.) Supervised design, research and writing of a substantial research paper on a theme in modern British history.

HIST 562 Modern Britain: Seminar 3. (3) (Prerequisite: HIST 561) (Restrictions: Not open to students who have taken HIST 484D1/D2 and/or HIST 634D1/D2.) Supervised design, research and writing of a substantial research paper on a theme in modern British history.

HIST 563 Modern Britain: Seminar 4. (3) (Prerequisite: HIST 562) (Restrictions: Not open to students who have taken HIST 484D1/D2 and/or HIST 634D1/D2.) Supervised design, research and writing of a substantial research paper on a theme in modern British history.

HIST 564 Modern Britain: Seminar 5. (3) (Prerequisite: HIST 563) (Restrictions: Not open to students who have taken HIST 484D1/D2 and/or HIST 634D1/D2.) Supervised design, research and writing of a substantial research paper on a theme in modern British history.

HIST 565 Modern Britain: Seminar 6. (3) (Prerequisite: HIST 564) (Restrictions: Not open to students who have taken HIST 484D1/D2 and/or HIST 634D1/D2.) Supervised design, research and writing of a substantial research paper on a theme in modern British history.

HIST 566 Modern Britain: Seminar 7. (3) (Prerequisite: HIST 565) (Restrictions: Not open to students who have taken HIST 484D1/D2 and/or HIST 634D1/D2.) Supervised design, research and writing of a substantial research paper on a theme in modern British history.

HIST 567 The Arts of Healing in China. (3) (Prerequisite (Undergraduate): At least two courses at the 300 level or above in East Asian history or permission of instructor) An historical perspective on the diverse arts of healing in China focusing on Key formations such as popular traditions, the emergence of classical medicine, the creation of...
Traditional Chinese medicine in modern China. Emphasis on healing as part of social, historical, intellectual, and cultural processes.

- **HIST 580D1 (3), HIST 580D2 (3) European and Native-American Encounters.**
  (Prerequisite (Undergraduate): Permission of instructor. Priority is given to Graduate students) (Students must register for both HIST 580D1 and HIST 580D2.) (No credit will be given for this course unless both HIST 580D1 and HIST 580D2 are successfully completed in consecutive terms) This seminar will examine European and Native encounters throughout the Americas, from the late 15th century to the mid-nineteenth century. The aim is to introduce students to key primary sources related to contact, and to the methods used to interpret them.

- **HIST 581 The Art of War in China.**
  (3) (Prerequisite (Undergraduate): at least two 300-level or above courses in East Asian history, or permission of instructor) A study of the historical development of military theory and practice from earliest times to 1911 from a variety of perspectives, technological, scientific, social, and cultural.

- **HIST 582 European Intellectual History.**
  (3) (Prerequisite (Undergraduate): a previous course in European History or permission of instructor) A study of selected topics in 20th century French and European intellectual and cultural history and popular culture.

- **HIST 583 Conservatism in Canada.**
  (3) (Prerequisite (Undergraduate): permission of instructor) (Restriction: Not open to students who have taken 101-462D topics: Canadian Conservatism) The history of Canadian Conservatism from the French Party of Adam Mabain and the various oligarchies, Family Compact, Chateau Clique and their Maritime counterparts through liberal conservatism to confederation. Special attention will be given to the emergence of clerical consent in Canada East and the alliance with Upper Canadian Toryism.

- **HIST 585 Theory for Historical Studies.**
  (3) (Prerequisite (Undergraduate): permission of instructor) Approaches to the interpretation and understanding of historical evidence which are outside the traditional historical discipline - reading of central texts in, for example, psychoanalytic theory, gender theory, or literary criticism and exercises in the use of these theories for historical research.

- **HIST 590 Topics: The British Empire.**
  (3) (Prerequisite (Undergraduate): permission of instructor) Topics in the history of British formal and informal imperialism and the colonial encounter from the eighteenth to the twentieth centuries.

**HIST 593D1 (3), HIST 593D2 (3) French Atlantic Worlds: Seminar.**
(Prerequisite: HIST 202 or HIST 203 or HIST 215 or permission of instructor.) (Restriction: Restricted to graduate students and honours students or advanced students who have permission of instructor.) (Students must register for both HIST 593D1 and HIST 593D2.) (Note: Topics will vary from year to year.) (Restriction: Undergraduate Honours students or Masters students in history.) (Students must register for both HIST 594D1 and HIST 594D2.) (No credit will be given for this course unless both HIST 594D1 and HIST 594D2 are successfully completed in consecutive terms) Topics in early modern British history.

- **HIST 595D1 (3), HIST 595D2 (3) Seminar: Early Modern Western Europe.**
  (Prerequisite (Undergraduate): permission of instructor) (Students must register for both HIST 595D1 and HIST 595D2.) (No credit will be given for this course unless both HIST 595D1 and HIST 595D2 are successfully completed in consecutive terms) This course is intended to offer advanced analytical and research training in a selected theme in western European history during the period from the Italian Renaissance to the French Revolution.

**HPSC-Hist & Phil of Science**
Offered by: Arts - Dean's Office

**HPSC 300 Independent Studies: History and Philosophy of Science.**
(3) (Restriction: Permission of Director and History & Philosophy of Science Committee) Offered by special arrangement between students in French and Science and a professor in either a Science or a Social Science Department. The purpose is to enable a student to undertake for credit the study of a special topic in the History or the Philosophy of Science.

- **HPSC 500 Interdisciplinary Seminar: History & Philosophy of Science.**
  (3) (Restriction: Permission of Instructor) At least one topic will be chosen from each of the four major areas: the mathematical, the physical, the biological, the social sciences.

**HSEL-Health Science Electives**
Offered by: Nursing

**HSEL 308 Issues in Women's Health.**
(3) (Fall) (Prerequisite: Introductory Psychology or Sociology or permission of the instructor) (Complementary course for the Women's Studies and Social Studies of Medicine Concentrations) Exploration of a wide range of topics on the health of women. Topics include use of health care system, poverty, roles, immigration, body image, lesbian health, and violence against women. Additional topics vary by year. A Health Science elective open to students in the Faculties of Arts, Science, and Medicine.

**HSEL 309 Women’s Reproductive Health.**
(3) (Winter) (Prerequisite: Introductory Psychology or Sociology or permission of the instructor) (Restriction: not open for credit to students who have taken HSEL 308 prior to September 1997) (Complementary course for the Women’s Studies and Social Studies of Medicine Concentrations) Concepts of health and medicalization. Canadian and international perspectives. Topics include contraception, abortion, infertility, menstruation, menopause, new reproductive technologies, prenatal care, childbirth. Additional topics vary by year. A Health Science elective open to students in the Faculties of Arts, Science, and Medicine.
IDFC-Interdisciplinary Field Course
Offered by: Social Work

• IDFC 380 Aboriginal Field Studies.
(3) (Restriction: Student registration requires approval of responsible faculty member(s) in Social Work/Law/Medicine/Anthropology, respectively.) (This intensive course is offered over 3 weeks. Weeks 1 and 3 are held at McGill. Week 2 consists of living in Kahnawake for 6 days. This field portion of the course may involve rugged field conditions and varying weather for which students must be prepared and equipped.) (A fee of $381 is charged to all students registered in IDFC 380 Aboriginal Field Course, a course that has a field experience in week 2 in Kahnawake. The fee covers food, activities, land use, and other site expenses.) This 3-week intensive course (2 weeks McGill, 1 week Kahnawake, Mohawk Territory) provides an opportunity for Social Work, Law, Medicine and Anthropology students to learn about Indigenous cultures and worldviews with particular emphasis on linkages to students' practice areas. Attention given to effects of Canadian policies on contemporary Aboriginal society.

INTD-International Development
Offered by: Inst for the St of Development

INTD 200 Introduction to International Development.
(3) An interdisciplinary introduction to the field of International Development Studies focusing on the theory and practice of development. It examines various approaches to international development, including past and present relationships between developed and underdeveloped societies, and pays particular attention to power and resource distribution globally and within nations.

• INTD 397 Topics in International Development.
(3) (Prerequisite: A 200 or 300 level course related to International Development, or permission of instructor.) Examines topics in specific problem areas in International Development Studies. Content varies every term.

INTD 490 Development Field Research.
(3) (Prerequisite: completion of ECON 313 and 3 credits of IDS Group A Complementary Courses) (Restriction: Open only to students enrolled in International Development Studies Concentrations with prior approval of IDS program adviser and project supervisor) Supervised reading, field work and research project in international development. Requirements consist of previously approved project proposal, field component (usually carried out during the summer), and research report based on field work to be completed upon return. (Students must also register for INTD 492N2.) (No credit will be given for this course unless both INTD 492D1 and INTD 492N2 are successfully completed in a twelve month period.) (INTD 492N1 and INTD 492D2 together are equivalent to INTD 492.) (Restriction: Open only to U3 Honours and Joint Honours students.) Supervised reading, field work and research and preparation of an undergraduate thesis under the direction of a staff member.

INTD 492 Honours Thesis.
(3) (Restriction: Open only to U3 Honours and Joint Honours students.) Supervised reading, research and preparation of an undergraduate thesis under the direction of a staff member.

• INTD 491D1 (1.5), INTD 491D2 (1.5) Honours Thesis.
(Students must register for both INTD 491D1 and INTD 491D2.) (No credit will be given for this course unless both INTD 491D1 and INTD 491D2 are successfully completed in consecutive terms.) (INTD 491D1 and INTD 491D2 together are equivalent to INTD 491.) (Restriction: Open only to U3 Honours and Joint Honours students.) Supervised reading, research and preparation of an undergraduate thesis under the direction of a staff member.

• INTD 491N1 (1.5), INTD 491N2 (1.5) Honours Thesis.
(Students must also register for INTD 491N2.) (No credit will be given for this course unless both INTD 491N1 and INTD 491N2 are successfully completed in a twelve month period.) (INTD 491N1 and INTD 491N2 together are equivalent to INTD 491.) (Restriction: Open only to U3 Honours and Joint Honours students.) Supervised reading, research and preparation of an undergraduate thesis under the direction of a staff member.

INTD 492 Honours Thesis with Field Research.
(6) (Requirements consist of previously approved project proposal, field component (usually carried out during the summer), and research thesis based on field work to be completed upon return.) (Restriction: Open only to U3 Honours and Joint Honours students.) (Restriction: Permission of an appropriate supervising instructor and program adviser required.) Supervised reading, field work and research and preparation of an undergraduate thesis under the direction of a staff member.

INTD 492D1 (3), INTD 492D2 (3) Honours Thesis with Field Research.
(Requirements consist of previously approved project proposal, field component (usually carried out during the summer), and research thesis based on field work to be completed upon return.) (Students must register for both INTD 492D1 and INTD 492D2.) (No credit will be given for this course unless both INTD 492D1 and INTD 492D2 are successfully completed in consecutive terms.) (INTD 492D1 and INTD 492D2 together are equivalent to INTD 492.) (Restriction: Open only to U3 Honours and Joint Honours students.) Supervised reading, field work and research and preparation of an undergraduate thesis under the direction of a staff member.

INTD 497 Research Seminar on International Development.
(3) (Restriction: Open only to students in final year of an IDS Concentration) An interdisciplinary research seminar on topics of common interest to staff and students of the International Development Studies programs. See www.mcgill.ca/ids/courseinfo/intd497

INTD 499 Internship: International Development Studies.
(3) (Restriction: Open to U2 and U3 students with a minimum CGPA of 2.7, and permission of the departmental Internship Adviser. This course will not normally fulfill program requirements for seminars or 400-level courses. A letter from a supervisor at the institution must attest to successful completion of the student's tenure.) Internship with an approved host institution or organization.

• INTD 597 Seminar in International Development.
(3) (Prerequisites: Permission of Instructor is required. At least one 400 level course listed in their International Development Studies Stream complementary course options.) (Restriction: Open to graduate students, final year Honours students, and other advanced undergraduates with the permission of the instructor.) An interdisciplinary research seminar on topics of common interest to staff and students of the International Development Studies program. As part of their contribution, students will prepare a research paper under the supervision of one or more members of staff.

ISLA-Islamic Studies
Offered by: Islamic Studies

ISLA 199 FYS: Narrations of the Middle East.
(3) (Fall) (Restriction(s): Only open to newly-admitted students in U0 or U1, who may take only one FYS.) (Note: Enrollment limit 25. Students who register for more than one FYS will be obliged to withdraw from all but one of them.) (Note: Language of instruction is English.) An introduction to competing narratives about crucial moments in the history and culture of the Middle East. Reading and discussion of texts drawn from a variety of perspectives and genres, including historical accounts, poetry, fiction, memoir and others.
ISLA 200 Islamic Civilization.
(3) (Winter) (Note: All readings are in English.) An introduction to, and survey of, the religious, literary, artistic, legal, philosophical and scientific traditions that constituted Islamic civilization from the 7th Century until the mid-19th Century.

ISLA 210 Muslim Societies.
(3) (Winter) An introduction to the different, often disparate, ways in which Muslims live and think in the modern world (19th-21st centuries). Muslim social contexts across the globe and cyberspace.

ISLA 325 Introduction to Shi’i Islam.
(3) (Winter) Developments in doctrines, legal school, rituals and political thought of Twelver Shi’ite Muslims during early and late medieval periods (centuries VII-XIII). The emergence of the earliest Shi’ite communities in Arabia, Yemen, Iraq and Iran stressing the relationship of the Shi’ite Imams and their religious scholars to the Sunni Caliphal.

ISLA 345 Science and Civilization in Islam.
(3) (Winter) (Prerequisite: ISLA 200 or permission of instructor.) (Note: All readings are in English.) History of scientific traditions and ideas in Islamic civilization, from the origins of Islam to the early modern period. Emphasis is on the derivation, development and transmissions of Islamic science, as well as on the assimilation and influence of science within Islamic culture.

ISLA 350 From Tribe to Dynasty.
(3) (Fall) (Prerequisite: ISLA 200 or permission of instructor.) (Restriction: Not open to U0 or U1 students.) The political and intellectual developments shaping Arab and Persian societies from the rise of Islam in the 7th century until the early mid 8th century, including the major social changes, political revolts, religious schisms, and the consolidation of lasting cultural institutions.

ISLA 355 Modern History of the Middle East.
(3) (Prerequisite: ISLA 210 or permission of instructor.) Assessment of the historical transformation of the modern Middle East concentrating on its internal socio-economic changes, as well as the colonial experience and encounters with the West since the early 19th century. Examination of the historical conditions that led to the rise of nationalism, the nation-state, the Arab-Israeli conflict.

ISLA 360 Islam and Politics.
(3) (Fall) (Prerequisite: ISLA 210 or permission of instructor.) Assessment of the relationship between Islam and politics in the contemporary Middle East and Africa through various analytic themes, including political economy, social movement and gendered analysis.

ISLA 365 Middle East Since the 1970’s.
(3) (Prerequisite: ISLA 210 or permission of instructor.) Changes that have occurred in the Middle East since the 1970’s, viewed through the lens of themes such as migration, consumerism, war, communications, and ideology.

ISLA 380 Islamic Philosophy and Theology.
(3) (Prerequisite: ISLA 200 or permission of instructor.) (Restriction: Not open to U0 or U1 students.) (Note: Reading and discussion in English.) A survey of the most important philosophers and theologians in Islamic intellectual history, with a focus on the theories they articulated and the movements they engendered. The impact of European thought on 19th and 20th century Islamic intellectual history is also examined.

ISLA 383 Central Questions in Islamic Law.
(3) (Winter) (Prerequisite: ISLA 200 or permission of instructor.) An integrative view of Islamic law in the past and present, including landmarks in Islamic legal history (e.g., sources of law; early formation; intellectual make-up; the workings of court; legal change; legal effects of colonialism; modernity and legal reform) and a structured definition of what it was/is.

ISLA 385 Poetics & Politics in Arabic Literature.
(3) (Prerequisite: ISLA 210 or permission of instructor.) Examination of literature produced in the Persian-speaking world from the mid 10th to the late 20th century C.E. A broad selection of texts (prose and poetry) will be studied in translation.

ISLA 386 Persian Literature.
(3) (Fall) (Prerequisite: ISLA 200 or permission of instructor.) (Note: Readings in English.) Consideration of Arabic literature as part of world literature, including exploration of tensions between reading Arabic literature as local, discrete and self-contained and as part of larger global phenomena.

ISLA 410 History: Middle-East 1798-1918.
(3) (3 hours) A study of the Middle East from Napoleon’s invasion of Egypt to the end of WWI. Emphasis will be on the emergence of nationalisms in the context of European imperialism: political, social, and economic transformation; religion and ideology; and changing patterns of alliances.

ISLA 411 History: Middle-East 1918-1945.
(3) (3 hours) The impact of WWI on Middle Eastern society and politics; the British and French mandates; the growth of nationalisms, revolutions and the formation of national states; WW II and the clash of political interests within the region.

ISLA 415 Modern Iran: Anthropological Approach.
(3) (Prerequisite: ISLA 210 or permission of instructor.) The modern history, social, and cultural anthropology of contemporary Iran.

ISLA 420 Indo-Islamic Civilization: Medieval.
(3) (Winter) (Prerequisite: ISLA 200 or permission of instructor.) The rise of Islam in South Asia in the 8th Century and its subsequent expansion; evolution of Indo-Islamic civilization and its apogee during Mughal rule up to 1707. Themes include state and religion; ruling institutions; political theory, Sufism and the process of conversion, as well as the formation of a composite culture.

ISLA 421 Islam in South Asia: 1757 to Present.
(3) (Prerequisite: ISLA 420 or permission of instructor.) Pre-colonial eighteenth century; colonial disruption: “ulama” and litterateurs as reformers, protagonists of modernism and traditionalism, and social activists; the challenges of modernity and search for Islamic solutions; minority identity and political separatism; Pakistan, Bangladesh, and Indian Muslims.

ISLA 501 The Qur'an: Text and History.
(3) (A study of the Qur’an’s teachings, structures, style, and history in the light of classical and modern scholarship.)
ISLA 505 Islam: Origin and Early Development. (3) (3 hours) The Qur'an, Hadith, the Shari'a and their major themes. The early development of law, theology and Sufism. The development and formation of an Islamic "orthodoxy", the development and nature of competing interpretations of Islam during the Classical Period. Topics: God, revelation, prophecy, the community and the individual and the meaning of history.

ISLA 506 Islam: Later Developments. (3) (3 hours) How the basic elements of Islam have been understood in the course of later Islamic history up to the present day. The nature and development of Shi'ism, Sufi brotherhoods, major intellectual trends, Islam in a world of nation states, diaspora. The challenges of modernity and the contemporary world.

ISLA 510D1 (3), ISLA 510D2 (3) History: Islamic Civilization - Classical. (3 hours) (Students must register for both ISLA 510D1 and ISLA 510D2.) (Note: No credit will be given for this course unless both ISLA 510D1 and ISLA 510D2 are successfully completed in consecutive terms) The origins of the early Islamic state in Arabia and the Umawi Caliphate. The growth of an Islamic civilization, and the "Abbasii Empire" until the Seljuki period. The rise of the Fatimis. The Caliphate of Cordoba.

ISLA 511D1 (3), ISLA 511D2 (3) History: Islamic Civilization - Mediaeval Era. (3 hours) (Prerequisite: Either ISLA 200 or ISLA 350) (Students must register for both ISLA 511D1 and ISLA 511D2.) (Note: No credit will be given for this course unless both ISLA 511D1 and ISLA 511D2 are successfully completed in consecutive terms) The Seljuks, and the medieval synthesis. The Moors in Spain and North Africa. The Crusades. The Mongols and the destruction of the Baghdad Caliphate. The Mamluki, Persian, Turkish and Indian Empires until 1700.

ISLA 521D1 (4.5), ISLA 521D2 (4.5) Introductory Arabic. (Fall and Winter) (5 lecture hours and laboratory) (Prerequisite: Placement Test or permission of instructor) (Students must register for both ISLA 521D1 and ISLA 521D2.) (Note: No credit will be given for this course unless both ISLA 521D1 and ISLA 521D2 are successfully completed in consecutive terms) Modern Standard Arabic. Focus on the development of speaking, listening, reading and writing skills, with an emphasis on the functional use of the language.

ISLA 522 D1 (3), ISLA 522 D2 (3) Lower Intermediate Arabic. (Fall and Winter) (3 hours and laboratory) (Prerequisite: ISLA 521 D1/D2 or equivalent, Placement Test, or permission of instructor.)

ISLA 523D1 (3), ISLA 523D2 (3) Higher Intermediate Arabic. (Fall and Winter) (3 hours and laboratory) (Prerequisite: ISLA 522D1 or equivalent, Placement Test, or permission of instructor.) (Students must register for both ISLA 523D1 and ISLA 523D2.) (Note: No credit will be given for this course unless both ISLA 523D1 and ISLA 523D2 are successfully completed in consecutive terms) Advanced level of the Arabic language study.

ISLA 524 Advanced Arabic 1. (3) (Prerequisite: ISLA 523D1/D2, Placement Test, or permission of instructor.) (Restriction: Not open to students who have taken ISLA 624 or ISLA 624D1/2.) (Note: Language of instruction is Arabic.) Advanced level of the Arabic language study.

ISLA 525 Advanced Arabic 2. (3) (Prerequisite: ISLA 524 or ISLA 624, Placement Test, or permission of instructor.) (Restriction: Not open to students who have taken ISLA 624D1/2 or ISLA 625.) (Note: Language of instruction is Arabic.) Advanced level of the Arabic language study.

ISLA 531D1 (3), ISLA 531D2 (3) Survey Development of Islamic Thought. (3 hours) (Students must register for both ISLA 531D1 and ISLA 531D2.) (Note: No credit will be given for this course unless both ISLA 531D1 and ISLA 531D2 are successfully completed in consecutive terms) A survey of the development of the major intellectual traditions of Islamic civilization in medieval and modern times.

ISLA 532D1 (3), ISLA 532D2 (3) Introductory Turkish. (Fall and Winter) (3 lecture hours plus conference and laboratory) (Prerequisite: ISLA 532 or equivalent) (Students must register for both ISLA 532D1 and ISLA 532D2.) (Note: No credit will be given for this course unless both ISLA 532D1 and ISLA 532D2 are successfully completed in consecutive terms)

ISLA 533D1 (3), ISLA 533D2 (3) Lower Intermediate Turkish. (Fall and Winter) (3 lecture hours plus conference and laboratory) (Prerequisite: ISLA 532 or equivalent) (Students must register for both ISLA 533D1 and ISLA 533D2.) (Note: No credit will be given for this course unless both ISLA 533D1 and ISLA 533D2 are successfully completed in consecutive terms)

ISLA 534D1 (3), ISLA 534D2 (3) Higher Intermediate Turkish. (Prerequisite: ISLA 532 or equivalent) (Restriction: Not open to students who have taken ISLA 633D1/D2.) (Students must register for both ISLA 534D1 and ISLA 534D2) (Note: No credit will be given for this course unless both ISLA 534D1 and ISLA 534D2 are successfully completed in consecutive terms)

ISLA 535D1 (3), ISLA 535D2 (3) Advanced Turkish. (Restriction: Not open to students who have taken ISLA 634D1/D2) (Students must register for both ISLA 535D1 and ISLA 535D2) (No credit will be given for this course unless both ISLA 535D1 and ISLA 535D2 are successfully completed in consecutive terms)

ISLA 541D1 (3), ISLA 541D2 (3) Introductory Persian. (Fall and Winter) (3 hours) (Prerequisite: Placement Test or permission of instructor) (Students must register for both ISLA 541D1 and ISLA 541D2.) (No credit will be given for this course unless both ISLA 541D1 and ISLA 541D2 are successfully completed in consecutive terms)

ISLA 542D1 (3), ISLA 542D2 (3) Lower Intermediate Persian. (Fall and Winter) (3 hours) (Prerequisite: ISLA 541D1/D2 or equivalent, Placement Test, or permission of instructor) (Students must register for both ISLA 542D1 and ISLA 542D2.) (No credit will be given for this course unless both ISLA 542D1 and ISLA 542D2 are successfully completed in consecutive terms)

ISLA 543 Upper Intermediate Persian 1. (3) (Fall) (Prerequisite: ISLA 542D1/D2, Placement Test, or permission of instructor.) (Restriction: Not open to students who have taken ISLA 642 or ISLA 643D1/D2.) (Note: Language of instruction is Persian.)Upper intermediate level of Persian language study.

ISLA 544 Upper Intermediate Persian 2. (3) (Prerequisite: ISLA 543 or ISLA 642, Placement Test, or permission of instructor.) (Restriction: Not open to students who have taken ISLA 643 or ISLA 643D1/D2.) (Note: Language of instruction is Persian.) Continuation of upper intermediate level of Persian language study.

ISLA 545 Advanced Persian 1. (3) (Winter) (Prerequisite: ISLA 544 or ISLA 643, Placement Test, or permission of instructor.) (Restriction: Not open to students who have taken ISLA 644 or ISLA 644D1/D2.) (Note: Language of instruction is Persian.)Advanced level of Persian language study.

ISLA 546 Advanced Persian 2. (3) (Prerequisite: ISLA 545 or ISLA 644, Placement Test, or permission of instructor.) (Restriction: Not open to students who have taken ISLA 644D1/2 or ISLA 645.) (Note: Language of instruction is Persian.) Advanced level of Persian language study.
Summer Study in Italy program. will also be given in Florence, Italy, as part of McGill's material as ITAL 205D1/ITAL 205D2. The Summer term (Restriction: Not open to students who have taken ITAL 206) (Students must register for both ITAL 210D1 and ITAL 210D2.) (No credit will be given for this course unless both ITAL 210D1 and ITAL 210D2 are successfully completed in consecutive terms) The course is intended for students who have never studied Italian but who have had some informal exposure to the language. Grammar, reading, conversation and composition. An outline of Italian civilization, oral presentations and discussions.

ITAL 251D1 (3), ITAL 251D2 (3) Intermediate Italian. (Fall, Winter) (3 hours) (Prerequisite: ITAL 210D1 and ITAL 210D2.) (No credit will be given for this course unless both ITAL 215D1 and ITAL 215D2 are successfully completed in consecutive terms) Direct continuation of ITAL 205D1/ITAL 205D2. Grammar, literary readings, conversation. Grammar exercises and composition. Reading of selected literary works, oral presentations and group discussion.

ITAL 250 Italian Literary Composition. (3) (Fall) (3 hours seminar) (Prerequisite: ITAL 215D1/ITAL 215D2, ITAL 216, or equivalent) (Restriction: Not open to students who have taken ITAL 206) (Students must register for both ITAL 215D1 and ITAL 215D2.) (No credit will be given for this course unless both ITAL 215D1 and ITAL 215D2 are successfully completed in consecutive terms) Direct continuation of ITAL 205D1/ITAL 205D2. Grammar, literary readings, conversation. Grammar exercises and composition. Reading of selected literary works, oral presentations and group discussion.

ITAL 251D1 (3), ITAL 251D2 (3) Intermediate Italian. (Fall, Winter) (3 hours) (Prerequisite: ITAL 210D1 and ITAL 210D2.) (No credit will be given for this course unless both ITAL 215D1 and ITAL 215D2 are successfully completed in consecutive terms) Direct continuation of ITAL 205D1/ITAL 205D2. Grammar, literary readings, conversation. Grammar exercises and composition. Reading of selected literary works, oral presentations and group discussion.

ITAL 215D1 (3), ITAL 215D2 (3) Elementary Italian. (Fall and Winter) (3 hours and laboratory) (Restriction: Not open to students who have taken ITAL 205D1/ITAL 205D2 or ITAL 206) (Students must register for both ITAL 210D1 and ITAL 210D2.) (No credit will be given for this course unless both ITAL 210D1 and ITAL 210D2 are successfully completed in consecutive terms) The course is intended for students who have never studied Italian but who have had some informal exposure to the language. Grammar, reading, conversation and composition. An outline of Italian civilization, oral presentations and discussions.

ITAL 251D1 (3), ITAL 251D2 (3) Intermediate Italian. (Fall, Winter) (3 hours) (Prerequisite: ITAL 210D1 and ITAL 210D2.) (No credit will be given for this course unless both ITAL 215D1 and ITAL 215D2 are successfully completed in consecutive terms) Direct continuation of ITAL 205D1/ITAL 205D2. Grammar, literary readings, conversation. Grammar exercises and composition. Reading of selected literary works, oral presentations and group discussion.

ITAL 250 Italian Literary Composition. (3) (Fall) (3 hours seminar) (Prerequisite: ITAL 215D1/ITAL 215D2, ITAL 216, or equivalent) (Restriction: Not open to students who have taken ITAL 206) (Students must register for both ITAL 215D1 and ITAL 215D2.) (No credit will be given for this course unless both ITAL 215D1 and ITAL 215D2 are successfully completed in consecutive terms) Direct continuation of ITAL 205D1/ITAL 205D2. Grammar, literary readings, conversation. Grammar exercises and composition. Reading of selected literary works, oral presentations and group discussion.

ITAL 215D1 (3), ITAL 215D2 (3) Elementary Italian. (Fall and Winter) (3 hours and laboratory) (Restriction: Not open to students who have taken ITAL 205D1/ITAL 205D2 or ITAL 206) (Students must register for both ITAL 210D1 and ITAL 210D2.) (No credit will be given for this course unless both ITAL 210D1 and ITAL 210D2 are successfully completed in consecutive terms) The course is intended for students who have never studied Italian but who have had some informal exposure to the language. Grammar, reading, conversation and composition. An outline of Italian civilization, oral presentations and discussions.

ITAL 251D1 (3), ITAL 251D2 (3) Intermediate Italian. (Fall, Winter) (3 hours) (Prerequisite: ITAL 210D1 and ITAL 210D2.) (No credit will be given for this course unless both ITAL 215D1 and ITAL 215D2 are successfully completed in consecutive terms) Direct continuation of ITAL 205D1/ITAL 205D2. Grammar, literary readings, conversation. Grammar exercises and composition. Reading of selected literary works, oral presentations and group discussion.

ITAL 250 Italian Literary Composition. (3) (Fall) (3 hours seminar) (Prerequisite: ITAL 215D1/ITAL 215D2, ITAL 216, or equivalent) (Restriction: Not open to students who have taken ITAL 206) (Students must register for both ITAL 215D1 and ITAL 215D2.) (No credit will be given for this course unless both ITAL 215D1 and ITAL 215D2 are successfully completed in consecutive terms) Direct continuation of ITAL 205D1/ITAL 205D2. Grammar, literary readings, conversation. Grammar exercises and composition. Reading of selected literary works, oral presentations and group discussion.

ITAL 251D1 (3), ITAL 251D2 (3) Intermediate Italian. (Fall, Winter) (3 hours) (Prerequisite: ITAL 210D1 and ITAL 210D2.) (No credit will be given for this course unless both ITAL 215D1 and ITAL 215D2 are successfully completed in consecutive terms) Direct continuation of ITAL 205D1/ITAL 205D2. Grammar, literary readings, conversation. Grammar exercises and composition. Reading of selected literary works, oral presentations and group discussion.
• ITAL 281 Masterpieces of Italian Literature 2.
  (3) (Winter) (Given in Italian) (Prerequisite: ITAL 215D1/ITAL 215D2, ITAL 216, or equivalent) (Restriction: Not open to students who have taken ITAL 326.) A survey of Italian literature from Renaissance to the 20th century. Interdisciplinary approach.

• ITAL 290 Commedia Dell’Arte.
  (3) (Fall) (Given in Italian) (Prerequisite: ITAL 215D1/ITAL 215D2, ITAL 216, or equivalent) (Restriction: Not open to students who have taken ITAL 330.) Playhouses, actors, stage techniques, masks and scenarios of the “Commedia dell’Arte”.

• ITAL 295 Contemporary Italy.
  (3) (Fall) (Given in Italian) (Prerequisite: ITAL 215D1/D2 or 216) (Restriction: Not open to students who have taken ITAL 328.) A cultural studies approach to contemporary Italian society. Focus on distinctive traits of Italian popular culture through literature, film, television and other media.

• ITAL 307 Topics in Italian Culture.
  (3) (Given in Italian) (Prerequisite: ITAL 215D1/ITAL 215D2 or ITAL 216, or equivalent) Course is given in Florence, Italy, as part of McGill’s Summer Study in Italy program. Selected topics in Italian culture (topics may vary and may concentrate on one or more of the following areas: geography, history, music, art history, political science and/or literature).

• ITAL 308 Business Italian 1.
  (3) (Prerequisite: ITAL 215D1/ITAL 215D2 or ITAL 216 or equivalent) Course is given in Florence, Italy, as part of McGill’s Summer Study in Italy program. It focuses on the terminology, idiomatic expressions and syntax of Italian business language. Topics, such as workplace in Italy, credit institutions, chamber of commerce and its role, industrial associations, will be used to help develop and improve written and oral communication skills as they relate to the business world.

• ITAL 309 Perspectives on Italy.
  (3) Course is given in Florence, Italy, as part of McGill’s Summer Study in Italy program. A study of various topics relating to the perception of Italy, the country, its people and their culture as seen by foreign and/or Italian writers. Course to be taught in English.

• ITAL 327 A Literary Map of Italy.
  (3) (Fall) (Given in Italian) (Prerequisite: ITAL 210D1/D2, ITAL 215D1/D2, ITAL 216, or permission of instructor) Italian literature from the perspective of Italy’s marked regional divisions. Works studied may range from Medieval to contemporary.

• ITAL 329 Contemporary Italian Cinema.
  (3) (Winter) (Prerequisite: ITAL 210D1/D2, ITAL 215D1/D2 or ITAL 216) (Note: Course taught in Italian) Contemporary Italian films in original language. Films are examined from a wide historical and cultural perspective. Introduction to issues and preoccupations central to contemporary Italy and rooted in the Italian cultural tradition.

• ITAL 341 The Art of Essay Writing.
  (3) (Fall) (Given in Italian) (Prerequisites: ITAL 300 or permission of the Department) Word formation in the Italian language. Syntactic and stylistic aspects of texts by Italian essayists.

• ITAL 355 Dante and the Middle Ages.
  (3) (Winter) (Given in English) An introduction to the work of Dante Alighieri, a pillar of medieval European literature. The times in which he lived, the institutions and cultural shifts of that era, the influence exercised by Dante's work, as well as how it has been perceived in our time.

• ITAL 356 Medieval Discourses on Love.
  (3) (Winter) (Given in Italian) (Prerequisite: ITAL 215D1/ITAL 215D2, ITAL 216, or equivalent) Medieval ideas, attitudes and behaviour surrounding love as represented in literature: readings will include excerpts from early Italian love lyrics, Dante's Vita Nuova, Petrarch's Canzoniere, Boccaccio's Decameron.

• ITAL 360 Contemporary Italian Prose.
  (3) (Fall) (Given in Italian) (Prerequisite: ITAL 210D1/D2, ITAL 215D1/D2, ITAL 216, or permission of instructor) A study of Italian fiction, docu-fiction and non-fiction published since 1990, examined in the context of the debates on post-modernism.

• ITAL 361 Italian Prose after 1945.
  (3) (Winter) (Given in English) Major prose works of Italian literature as they reflect the reactions of writers to the social, cultural and political dilemmas facing Italian society in the second half of the 20th century.

  (3) (Winter) (Given in Italian) (Prerequisites: ITAL 215D1/D2, ITAL 216 or equivalent) A study of Italian prose fiction and non-fiction in the context of some of the events and issues that marked these years: the aftermath of Fascism, the economic boom, terrorism, the Mafia, the North-South question.

• ITAL 363 Gender, Literature and Society.
  (3) (Winter) (Given in English) (Course for the Women's Studies Concentrations) Questions of gender identity and literary representation as they emerge from women's texts or from comparisons of women's and men's texts, in relation to specific social and historical conditions. May focus on any time period in Italian history, from medieval to contemporary.

• ITAL 365 The Italian Renaissance.
  (3) (Winter) (Given in English) A presentation of the main ideas and literary masterpieces of the Italian Renaissance (13th-17thC), in the context of Italy's social, political, religious and cultural climate. Reading and discussion of selected literary texts and visual material.

• ITAL 366 Literature of the Renaissance.
  (3) (Winter) (Given in Italian) (Prerequisite: ITAL 215D1/ITAL 215D2, ITAL 216, or equivalent) Reading and discussion of selected literary texts (Poliziano, Lorenzo, Alberti, Sannazzaro, Castiglione among others) will provide an opportunity to become familiar with the social and political conditions of literary production, the ideas and debates about language and literature, and the literary genres which emerged during the Renaissance.

• ITAL 370 Italian Poetry and Music.
  (3) (Given in Italian) (Prerequisite: ITAL 215D1/ITAL 215D2, ITAL 216, or equivalent) A study of the texts of Italian madrigals, canzoni, motetti and libretti in relation to their musical setting from the Renaissance to the 19th century. Emphasis on the transformation of literary texts for their adaptation to music, and on the language of Italian Opera. No specialized knowledge of music is required.

• ITAL 374 Classics of Italian Cinema.
  (3) (Fall) (Note: Course taught in English.) Key works in the history of Italian cinema; an in-depth analysis of a few exceptional works; emphasis on the complex web of relationships connecting each work to a wide range of cultural products and expressions, from literature to popular culture, in Italy and internationally.

• ITAL 375 Cinema and Society in Modern Italy.
  (3) (Fall) (Given in English) A survey of the most important trends in post-war Italian cinema seen in the context of the rapidly and dramatically evolving society of modern Italy.

• ITAL 380 Neorealism: Roots and Development.
  (3) (Winter) (Given in Italian) (Prerequisite: ITAL 215D1/ITAL 215D2) Focus on pivotal narrative and cinematic works that illustrate the evolution of Italian realism from the late 19th century naturalism to post-WWII neorealism.

• ITAL 383 Women's Writing since 1880.
  (3) (Winter) (Prerequisite: any 300 level course given in Italian or permission of the Department) (Course for the Women's Studies Concentrations) A study of Italian women writers and their search for literary identity.

• ITAL 385 Italian Futurist Movement.
  (3) (Given in English) Futurism is essentially a multidisciplinary movement. Using textual and visual material, its various manifestations - in literature, "paraliterature", painting, photography, theatre, film, sculpture, architecture, music, dance and performance - will be examined from a double
ITAL 410 Modern Italian Literature.
(3) (Fall) (Given in Italian) A study of representative works of major Italian authors from the fin-de-siècle to WWII.

ITAL 411 Pirandello.
(3) (Given in Italian) (Prerequisite: ITAL 215D1/ITAL 215D2, ITAL 216, or equivalent) Selected readings from Pirandello’s essays, short stories, novels and plays in the light of his ideological rejection of the literature and society of his time.

ITAL 416 The Twentieth Century.
(3) (Given in English.) Topics in twentieth-century Italian literary and cultural history. The focus may be on a movement, a theme, a genre, a specific writer, or a specific period.

ITAL 420 Leopardi and Italian Romanticism.
(3) (Fall) (Given in Italian) (Prerequisite: ITAL 215D1/D2, ITAL 216, or equivalent) The major early 19th century poets in the context of Italian and European Romanticism.

ITAL 435 Ariosto’s "Orlando Furioso".
(3) (Fall) (Given in Italian) (Prerequisite: ITAL 215D1/ITAL 215D2, ITAL 216, or equivalent) Ariosto’s chivalresque poem in the context of the Italian Renaissance.

ITAL 436 Tasso’s "Gerusalemme Liberata".
(3) (Winter) (Given in Italian) (Prerequisite: ITAL 215D1/ITAL 215D2) A study of Tasso’s poem in the context of the Counter Reformation.

ITAL 444 Individual Reading Course.
(3) (Fall or Winter) (Prerequisite: ITAL 215D1/ITAL 215D2, ITAL 216, or equivalent) In exceptional circumstances, this course may be used to meet special interests of students or to assist them in meeting the standard requirements of the Department.

ITAL 464 Machiavelli.
(3) (Fall) (Given in English) Machiavelli, the political thinker and man of letters. A portrait of Machiavelli as political theorist, playwright and observer of his times. Reading of The Prince as well as selected plays, letters and other writings.

ITAL 470 Joint Honours Thesis.
(3) (Fall or Winter) (Restriction: Compulsory for Honours and Joint Honours students.) Joint Honours Thesis.

ITAL 471D1 (3), ITAL 471D2 (3) Honours Thesis.
(Fall, Winter) (Restrictions: Compulsory for Honours students. Not open to students who have taken ITAL 472.) (Students must register for both ITAL 471D1 and ITAL 471D2) (No credit will be given for this course unless both ITAL 471D1 and ITAL 471D2 are successfully completed in consecutive terms) Honours Thesis.

ITAL 472 Honours Thesis (Intensive).
(6) (Fall or Winter) (Restrictions: Compulsory for Honours students. Not open to students who have taken ITAL 471D1/D2) Intensive Honours thesis.

ITAL 477 Italian Cinema and Video.
(3) (Winter) (Given in Italian) (Restriction: Not open to students who have taken ITAL 377) Different Italian film maker or videomaker every year, presenting a selection of his/her significant works. Discussions will include script analysis, interviews, articles and books by the director in focus, in addition to theoretical and critical statements by scholars. Established and new directors will be considered alternately.

ITAL 499 Internship: Italian Studies.
(3) (Fall or Winter) (Prerequisite: Permission of the departmental Internship Advisor.) (Restriction: Open to U2 and U3 students after completing 30 credits of a 90 credit degree program or 45 credits of a 69-120 credit program, a minimum CGPA of 2.7, and permission of the departmental Internship Advisor. This course will not normally fulfill program requirements for seminar or 400-level courses.) Internship with an approved host institution or organization.

ITAL 530 17th-18th Century Culture.
(3) (Given in Italian)

ITAL 542 History of Italian Language.
(3) (Winter) (Given in Italian) (Prerequisite for Undergraduate students: permission of the Department) A historical survey of the intense debate on the problem of literary language in Italy, from Dante to the present time, as caused by the variance between spoken and written languages; followed by an in-depth examination of the theoretical and literary texts of one particular period.

ITAL 560 Topics in 19th & 20th Century Literature.
(3) (Winter) (Given in Italian) (Prerequisite for Undergraduate students: permission of the Department) Exploration of individual authors, genres, and literary or cultural movements that have marked Italian culture in the 19th and 20th century.

ITAL 563 13th-16th Century Literature.
(3) (Fall) (Given in Italian) (Prerequisite for Undergraduate students: permission of the Department) Topics in the literature of the 13th to the 16th Centuries.

ITAL 591 Italian Literary Criticism.
(3) (Given in Italian) (Prerequisite: Permission of the department) (Restriction: A minimum of 6 credits at the 400-level) (Note: Students should already have a minimum of 6 credits at the 400-level) Croce’s "critica estetica" to contemporary semiology. Critical essays will be analyzed and compared with theoretical statements about the definition and role of literature.

JWST-Jewish Studies

Offered by: Jewish Studies

JWST 199 FYS: Images - Jewish Identities.
(3) (Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) (Maximum enrolment 25) A seminar devoted to literary portrayals of Jews by Jews and non-Jews from Biblical times to the present. Both positive and negative understandings of Jewish identity and Judaism will be studied.

JWST 200 Hebrew Language (Intensive).
(12) (Restriction: Not open to students who have taken or are taking JWST 220 or JWST 320) (Normally offered in the summer.) Intensive language course, covering the first two levels in one year rather than the usual two.

JWST 201 Jewish Law.
(3) The nature and history of Jewish law; literary and legal sources; selections in English from the Mishnah and Talmud, as well as selected post-Talmudic Texts, on such subjects as Contracts, Torts, Public Law and Family Law.

JWST 206 Introduction to Yiddish Literature.
(3) (Readings are in English) A survey of modern Yiddish literature from its beginnings in the 1880s to the present. Particular attention will be paid to representative themes, forms, and literary techniques. Emphasis will be put on relations between literary texts and historical and literary contexts.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.
(ARTS) JWST-JEWISH STUDIES

JWST 211 Jewish Studies 1: Biblical Period.
(3) (All texts will be read in English) The history, literature and beliefs of Judaism's formative period. Both Biblical and non-Biblical materials will be studied. The Bible in the context of cognate literatures of the Ancient Near East; non-Biblical documents will be analysed for their bearing on the Jewish tradition.

**JWST 216 Jewish Studies 2: 400 B.C.E. - 1000.**
(3) (All texts and discussions will be in English) (Restrictions: Not open to students who have taken HIST 207) The history, literature and intellectual developments in Judaism during late antiquity. Special emphasis will be placed on rabbinic literature e.g. Babylonian Talmud, Palestinian Talmud, the midrashim both as literary works and for the light they shed on the events and ideologies of the period.

**JWST 217 Jewish Studies 3: 1000 - 2000.**
(3) (All texts will be read in English) The Jewish experience from the rise of the European centres to the present.

**JWST 220 Introductory Hebrew.**
(6)

JWST 220D1 (3), JWST 220D2 (3) Introductory Hebrew.
(Students must register for both JWST 220D1 and JWST 220D2.) (No credit will be given for this course unless both JWST 220D1 and JWST 220D2 are successfully completed in consecutive terms)

**JWST 225 Literature and Society.**
(3) (All texts will be read in English) A panoramic analysis of Israeli society through poetry, fiction, essays, interviews and testimonial narratives reflecting the country's historical, ideological and ethnic complexity. In English translation, we will read Oz, Amichai, Habibi, Har-Even and Yehoshua, as well as new authors from divergent ethnic, religious and ideological positions.

**JWST 226 Contemporary Israeli Fiction.**
(3) Topic for Winter 2012: A Sense of Place, Jerusalem and Beyond. Study of selected themes in literary works by Israeli authors.

**JWST 240 The Holocaust.**
(3) (Restriction: Not open to students who have taken JWST 252 "The Holocaust") Consideration of the history of the Holocaust and the literary, theological and cultural responses to the destruction of European Jewry.

**JWST 252 Interdisciplinary Lectures.**
(3) Topic for Fall 2011: A Survey of Jewish Literature from the Bible to Modern times.

**JWST 254 The Jewish Holy Days.**
(3) An exploration of the Jewish holy days. Emphasis is placed on their historical development, philosophical messages, and ritual forms.

**JWST 261 History of Jewish Philosophy & Thought.**
(3) An introduction to Jewish philosophy and thought from the Hellenic period (Philo) to the beginning of the modern era (Spinoza) focusing on topics such as prophecy and philosophy, God and the world; the Law as a canon of ethical rules and as a political constitution. survey the treatment of such issues by Jewish thinkers from Philo to Maimonides.

**JWST 280 Introductory Yiddish.**
(6) (Summer) Introduction to basic structures of standard Yiddish. Intensive practice in speech and written structures. Emphasis on grammar, reading and writing. Selected readings to introduce Yiddish culture.

**JWST 280D1 (3), JWST 280D2 (3) Introductory Yiddish.**
(Students must register for both JWST 280D1 and JWST 280D2.) (No credit will be given for this course unless both JWST 280D1 and JWST 280D2 are successfully completed in consecutive terms) (JWST 280D1 and JWST 280D2 together are equivalent to JWST 280) Introduction to basic structures of standard Yiddish. Intensive practice in speech and written structures. Emphasis on grammar, reading and writing. Selected readings to introduce Yiddish culture.

**JWST 300 Charisma and Social Change.**
(3) An introduction to charismatic phenomena in politics, religion and the media, and interpretation of them, from the ancient prophets to the modern period. Particular attention will be given to charisma as a general force for social change and also the lives of individuals such as Lenin, Krishnamurti and Chaplin.

**JWST 303 The Soviet Jewish Experience.**
(3) (Readings in English) Sovietization both fueled the modernization of Russian Jewry and contributed to its eventual suppression. This experience will be examined from two perspectives: history and literature. The interrelationship between culture and politics and the effects of ideology and censorship on literature will be discussed.

**JWST 305 American Jewish History / Colonial Era to WWI.**
(3) The interaction of Jewish and American historical traditions in forging the American Jewish experience. The themes of acculturation, immigration and political behaviour will be treated.

**JWST 306 The American Jewish Community.**
(3) Issues affecting American Jewry in the post-World War I era until today and the American Jewish community's responses to those issues. Special emphasis on understanding the community responses and reactions to developments in both the American society and in the Jewish world.

**JWST 309 Jews in Film.**
(3) An introduction to the portrayal of Jews in film from the 1920s to the present. Films to be studied will usually be based on literary texts in English, which will form part of the required study. Films in languages other than English will be subtitled.

**JWST 310 Believers, Heretics and Critics.**
(3) Issues in the development of Biblical interpretation based on classical Jewish thought, heretical Jewish doctrines and contemporary Biblical criticism.

**JWST 314 Denominations in North American Judaism.**
(3) A survey of Reform, Reconstructionist, Conservative and Orthodox Judaism in North America. Emphasis is placed on the ideology forwarded by the movements since their inception.

**JWST 315 Modern Liberal Jewish Thought.**
(3) The work of Mordecai Kaplan, followed by a study of several contemporary authors following feminist, mystical and postmodernist tendencies.

**JWST 319 Judaism and the Occult.**
(3)

**JWST 320 Intermediate Hebrew.**
(6)

JWST 320D1 (3), JWST 320D2 (3) Intermediate Hebrew.
(Students must register for both JWST 320D1 and JWST 320D2.) (No credit will be given for this course unless both JWST 320D1 and JWST 320D2 are successfully completed in consecutive terms) JWST 320D1 and JWST 320D2 together are equivalent to JWST 320.

**JWST 322 The Israeli Novel.**
(3) In-depth examination of selected Israeli novels written during the past fifty years of national formation and consolidation. Authors may include Agnon, Yehoshua, Oz, Shabtai, Shalev and others.

**JWST 324 Biblical Interpretation - Antiquity.**
(3) Texts from the millennium before the rise of Islam will be studied for the light they shed on Jewish interpretation of Hebrew scripture. Selections deal with narrative and legal portions of the Bible and include pagan, Christian and Jewish sources: excerpts from the Bible and Philo, Josephus, Pseudo-Philo, Jubilees, Enoch, Eusebius, Dead Sea Scrolls (including The Temple Scroll), Ephegaem Syrus, Origen, Jerome, The Septuagint, Targumim, Talmud and Midrash.

**JWST 325 Israeli Literature in Translation.**
(3) Survey of contemporary Israeli fiction that reflects Israel's cultural, political, and historical concerns. Authors may include Yehoshua, Oz, Librecht, Michael, Shamir, Castel-Bloom, and others.
JWST 327 A Book of the Bible.
(3) (Fall) (Prerequisite: Knowledge of Hebrew) Topic for Fall 2011: Book of Genesis. One book of the Bible will be studied in its entirety in Hebrew. Emphasis on the contributions of Ancient Near Eastern Studies (archaeology, comparative literature and Semitic linguistics) to understanding the text.

JWST 328 A Book of the Bible.
(3) (Winter) (Prerequisite: Knowledge of Hebrew) One book of the Bible will be studied in its entirety in Hebrew. Emphasis on the contributions of Ancient Near Eastern Studies (archaeology, comparative literature and Semitic linguistics) to understanding the text.

JWST 329 A Book of the Bible.
(3) (Fall) (Prerequisite: Knowledge of Hebrew) One book of the Bible will be studied in its entirety in Hebrew. Emphasis on the contributions of Ancient Near Eastern Studies (archaeology, comparative literature and Semitic linguistics) to understanding the text.

JWST 330 A Book of the Bible.
(3) (Winter) (Prerequisite: Knowledge of Hebrew) One book of the Bible will be studied in its entirety in Hebrew. Emphasis on the contributions of Ancient Near Eastern Studies (archaeology, comparative literature and Semitic linguistics) to understanding the text.

JWST 331 Bible Interpretation/Medieval Ashkenaz.
(3) (Prerequisite: Knowledge of Hebrew) An introduction to Jewish interpretation of the Bible in the Middle Ages. Readings from the Hebrew Bible and the commentaries of Rashi, Rashbam, the Tosafists, etc.

JWST 332 Bible Interpretation/Sefardic Tradition.
(3) (Prerequisite: Knowledge of Hebrew. Recommended: JWST 331) Readings from the Hebrew Bible and the commentaries of Ibn Ezra, Nachmanides, Abravanel, etc.

JWST 333 The Hebrew Liturgy.
(3) (Prerequisite: Reading knowledge of Hebrew) The structure, contents, foci and ideological assumptions of Jewish prayer. Texts will reflect the different approaches to prayer in Biblical, rabbinic, medieval and modern periods, with emphasis on the evolution of the classical Hebrew prayer book (Siddur) and the Passover Hagadah.

JWST 337 Jewish Philosophy and Thought 1.
(3) (Fall) Focuses on either a period, a current of thought or the work of a thinker in the history of Jewish thought from Antiquity to the Middle Ages, paying particular attention to the relationship of Jewish thinkers to intellectual trends in their respective cultural contexts. Contemporary Muslim and Christian theologians and philosophers.

JWST 338 Jewish Philosophy and Thought 2.
(3) (Winter) Focuses on either a period, a current of thought or the work of a thinker in the history of Jewish thought from the Middle Ages to Modern Times, paying particular attention to the relationship of Jewish thinkers to intellectual trends in their respective cultural contexts. Themes and concerns of Jewish theology and on Jewish responses to contemporary trends in European thought.

JWST 340 Advanced Hebrew.
(6) JWST 340D1 (3), JWST 340D2 (3) Advanced Hebrew.
(Prerequisite: JWST 200 or JWST 320 or permission of the Hebrew Language Coordinator) (Students must register for both JWST 340D1 and JWST 340D2.) (No credit will be given for this course unless both JWST 340D1 and JWST 340D2 are successfully completed in consecutive terms)

JWST 345 Introduction to Rabbinic Literature.
(3) (All readings in English) An introduction to the study of Rabbinic texts.

JWST 346 Modern Jewish Studies.
(3) Topic for Fall 2011: Sephardic Footsteps in World Music. Topic for Winter 2012: Political Expression in Israeli Songs. Topics in Jewish Studies. Semesters will be devoted to specific issues and periods of the Jewish Experience since 1500 and the literature produced by Jews during this period.

JWST 347 Modern Jewish Studies.
(3) Topic for Winter 2012: Jewish Literature 1918-1939. Topics in Jewish Studies. Semesters will be devoted to specific issues and periods of the Jewish Experience since 1500 and the literature produced by Jews during this period.

JWST 348 Modern Jewish Studies.
(3) Topic for Fall 2011: Jewish Life Through Music. Topics in Jewish Studies. Semesters will be devoted to specific issues and periods of the Jewish Experience since 1500 and the literature produced by Jews during this period.

JWST 349 Modern Jewish Studies.
(3) Topic for Winter 2012: Mosaic of Jewish Music in North America. Topics in Jewish Studies. Semesters will be devoted to specific issues and periods of the Jewish Experience since 1500 and the literature produced by Jews during this period.

JWST 351 Studies in Modern Jewish Literature.
(3) (All texts will be read in English) Topic for Fall 2011: Jews and Gender.

JWST 353 Interdisciplinary Lectures 1.
(3) Topic 2012: From Thought to Action: Faith-based Social Justice within the Abrahamic Traditions (Judaism, Christianity, Islam). Note: Please disregard the course description on Jerusalem. A multi-disciplinary course on Jerusalem. The history of the city; its changing significance in various religions; its use as an artistic and literary symbol, will all be examined.

JWST 354 Interdisciplinary Lectures 2.
(3) Topic for Winter 2012: The Bible in English Literature.

JWST 355 The Yiddish Canon.
(3) (Prerequisite: Any literature course) This course will focus on the Classical Period (1860 - 1915) in Yiddish literature. We will be reading landmark texts in English translation.

JWST 356 Jewish Labour Movement/Eastern Europe.
(3) The development of the Jewish labor and socialist movement in Eastern Europe from the last quarter of the 19th century to the Bolshevick Revolution.

JWST 357 Jewish Labour Movement/North America.
(3) The development of the Jewish labor and socialist movement in North America from the last quarter of the 19th century to WWI.

JWST 358 Topics in Jewish Philosophy 1.
(3) (All texts in English) Topic for Winter 2012: The “Chosen People”.

JWST 359 Topics in Jewish Philosophy 2.
(3) (All texts in English) Topic for Winter 2012: Jewish Mysticism - The Zohar.

JWST 361 The Shtetl: 1500-1897.
(3) Using historical, sociological, literary and cultural sources, this course will examine various aspects of communal and individual life in the shtetl, the Jewish - or largely Jewish - town in Eastern Europe.

JWST 362 The Shtetl: 1897-1939.
(3) (Recommended: JWST 361)
JWST 365 Modern Jewish Ideologies.
(3) The rise and development of the various ideologies which attempt to define the Jews in historical, national and socio-cultural terms will be analyzed within the context of modern European nationalism. Selected texts of the Jewish Enlightenment, Science of Judaism, Peretz Smolenski, Leon Pinsker, Simon Dubnow, Chaim Zhitlowsky and Ahad Ha-Am.

JWST 366 History of Zionism.
(3) (Recommended: JWST 365) An examination of the development of the Zionist idea, the most influential expression of modern Jewish nationalism, which led to the creation of the Jewish state. The transformation of elements of traditional Jewish messianism into a modern political ideology. Hibbat Zion, Political Zionism, Cultural and Synthetic Zionism will be discussed.

JWST 367 Studies in Hebrew Language and Literature.
(3) (Fall) To expand knowledge of grammar, and vocabulary and idioms in order to enhance reading comprehension and facility in writing and speaking. Of value to those interested in all aspects of Hebrew literature, classical and modern.

JWST 368 Studies in Hebrew Language and Literature.
(3) (Winter) To expand knowledge of grammar, and vocabulary and idioms in order to enhance reading comprehension and facility in writing and speaking. Of value to those interested in all aspects of Hebrew literature, classical and modern.

JWST 369 Studies in Hebrew Language and Literature.
(3) (Fall) To expand knowledge of grammar, and vocabulary and idioms in order to enhance reading comprehension and facility in writing and speaking. Of value to those interested in all aspects of Hebrew literature, classical and modern.

JWST 371D1 (3), JWST 371D2 (3) Jews and the Modern City.
(Students must register for both JWST 371D1 and JWST 371D2.) (No credit will be given for this course unless both JWST 371D1 and JWST 371D2 are successfully completed in consecutive terms) In the forefront of the development of modern society in Europe and North America, the Jews have shown a distinct preference for the metropolis. The influence of Vienna and New York on the socio-cultural development of the Jews and on the Jewish contribution to general culture. The contributions of Schnitzler, Freud, Herzl and the New York intellectuals.

JWST 374 Talmud and Law 1: Bava Kamma.
(3) An introduction to Bava Kamma, in particular to Talmudic dialectic and interpretation; Talmudic law of torts; damages committed by one’s self or one’s property; negligence and absolute liability.

JWST 375 Talmud and Law 2: Bava Metzia.
(3) An introduction to Bava Metzia. Talmudic texts covering a wide range of subjects.

JWST 380D1 (3), JWST 380D2 (3) Intermediate Yiddish.
(Prerequisite: JWST 280 or permission of instructor) (Students must register for both JWST 380D1 and JWST 380D2.) (No credit will be given for this course unless both JWST 380D1 and JWST 380D2 are successfully completed in consecutive terms) Intermediate level of study of structures of standard Yiddish. Emphasis on reading, composition and conversation. Selected readings and visual materials to expand knowledge of Yiddish culture.

JWST 381 Modern Yiddish Literature.
(3) Topic for Fall 2011: The Yiddish novels in English Translation.

JWST 383 Holocaust Literature.
(3) (Restriction: Not open to students who have taken this topic under JWST 381) Readings from Holocaust literature in English translation. Writers include Primo Levi, Aharon Appelfeld, Elie Wiesel, Dan Pagis, Paul Celan, Nelly Sachs, U.Z. Greenberg and others.

JWST 386 American Jewish Literature.
(3) (Readings in English) An intensive study of American Jewish novels from the 1900s to the present. Attention to representations of gender, class and Jewishness as seen in relation to changing notions of America. Focus on ways novels represent and wrestle with Jewish difference.

JWST 387 Modern Jewish Authors.
(3) Topic for Winter 2012: Jews and Blacks. Introduction to representative novels written in America by Jews from the 1950s to the present. Issues of Jewish identity, ethnicity will inform our discussions. Focus on contemporary Jewish authors; consideration of the ways in which the complexities of American life are re-scripted in these novels.

JWST 403 Contemporary Hebrew Literature.
(3) (Prerequisite: Proficiency in Hebrew.) Israeli literature in its original language with emphasis on in-depth literary analysis. Texts read in Hebrew; assignments may be written in English.

JWST 404 Literary Response to Loss/Separation.
(3) (Prerequisite: Some prior related university course at 300 level or higher, e.g. literature, psychology or social work. Permission of instructor required) (All texts in English) Discussion of loss in Jewish literature, particularly in Holocaust writings, and in various themes, in memories, dreams or in mysticism, for example. A basic introduction to clinical studies on grief will serve as background.

JWST 412 Topics: Modern Hebrew Literature 2.
(3) (Prerequisite: Knowledge of advanced Hebrew essential) Readings from Israeli prose and poetry illustrating some of the main concerns of the literature: the struggle for survival, the Holocaust, the tension between the collective and the individual, the decline of orthodox Judaism and of Zionist ideology, the conflicts between the religious and the secular, Oriental and occidental, Jew and Arab.

JWST 430 Tutorial in Hebrew Literature.
(3)

JWST 439 Survey of Hebrew Literature 2.
(3) (Prerequisite: Advanced Hebrew or equivalent)

JWST 445 The Poetry of Nationalism.
(3) (Recommended: Advanced Hebrew or equivalent) Readings from Israeli prose and poetry illustrating some of the main concerns of the literature: the struggle for survival, the holocaust, the tension between the collective and the individual, the decline of orthodox Judaism and of Zionist ideology, the conflicts between the religious and the secular, Oriental and occidental, Jew and Arab.

JWST 474 Maimonides’ Mishneh Torah.
(3) (Prerequisite: JWST 360, 361, 362, 363 and 364 or permission of instructor) (Restriction: Not open to students who have taken JWST 480D1 and JWST 480D2) Development of advanced Yiddish language skills in conversation and discussion, composition, and oral presentation. Particular emphasis will be placed on the reading and paraphrasing of a variety of literary texts.

JWST 480 Advanced Yiddish 1.
(3) (Fall) (Prerequisite: JWST 380 or permission of the instructor) (Restriction: Not open to students who have taken JWST 480D1 and JWST 480D2) Development of advanced Yiddish language skills in conversation and discussion, composition, and oral presentation. Particular emphasis will be placed on the reading and paraphrasing of a variety of literary texts.

JWST 481 Advanced Yiddish 2.
(3) (Winter) (Prerequisite: JWST 380D1 and JWST 380D2; or permission of the instructor.) (Restriction: Not open to students who have taken JWST 480D1 and JWST 480D2) Additional development of advanced Yiddish language skills in conversation and discussion, composition, and oral presentation. Particular emphasis will be placed on the reading and paraphrasing of a variety of literary texts.

JWST 485 Tutorial in Yiddish Literature.
(3)

JWST 486 Tutorial in Yiddish Literature.
(3)
JWST 487 Tutorial in Yiddish Literature. (3)

JWST 488 Tutorial in Yiddish Literature. (3)

JWST 491 Honours Thesis 1. (3) (Restriction: Open only to Honours and Joint Honours students.) A tutorial for the preparation of an Honours Thesis.

JWST 492 Honours Thesis 2. (3) (Restriction: Open only to Honours and Joint Honours Students.) A tutorial for the preparation of an Honours Thesis.

JWST 499 Internship: Jewish Studies. (3) (Restriction: Open to U2 and U3 students pursuing a Majors or Honours program in Jewish Studies with a minimum CGPA of 2.7, and permission of the departmental Internship Advisor. This course will not normally fulfill program requirements for seminar or 400-level courses. A letter from a supervisor at the institution must attest to successful completion of the student’s tenure.) Internship with an approved host institution or organization.

JWST 502 Modern Israeli Literature. (3) (Prerequisite: JWST 340 or permission of instructor) (Knowledge of Hebrew required) A review of the master texts of Israeli literature from the modern period.

JWST 504 Seminar in Jewish Thought. (3) (Note: Readings in English) Examination of a theme or philosopher in the history of Jewish thought with particular attention to the intersections between Jewish thought and other intellectual traditions (e.g. Greek, Islamic, Christian, etc.)

JWST 510 Jewish Bible Interpretation 1. (3) (Restriction: Not open to students who have taken JWST 512) The issues, approaches, and texts of Jewish Bible interpretation between the Biblical and Talmudic eras: Bible interpretation in the Bible; in Greco-Roman Jewish literature; in the Mishnah, Tosefta, Targумim, and Talmud; early Samaritan interpretation, Bible interpretation in ancient synagogue art, and in the massoretic literature.

JWST 511 Jewish Bible Interpretation 2. (3) (Restriction: Not open to students who have taken JWST 512) The issues, problems, approaches, and texts of Jewish Bible interpretation in medieval, renaissance, early modern, and modern times. Interpretation in the Geonic, Ashkenazi, Sepharadī, North African, Italian, European, Yemenite, North American and Israeli centres of Jewish Learning.

JWST 520 Bible Interpretation in Antiquity. (3)

JWST 521 Bible in Dead Sea Scrolls. (3)

JWST 523 Ancient Bible Interpretation. (3) Advanced level work in one aspect of Jewish Bible interpretation in ancient times.

JWST 530 Topics in Yiddish Literature. (3) Supervised research in Yiddish literature. Work will focus on one genre, literary school or author.

JWST 531 Topics in Yiddish Literature. (3) Supervised research in Yiddish literature. Work will focus on one genre, literary school or author.

JWST 532 Narrative Midrash. (3)

JWST 533 Halakhic Midrash. (3) Supervised research in Yiddish literature. Work will focus on one genre, literary school or author.

JWST 534 Hīmatīc Midrash. (3) The issues and techniques of early rabbinic preaching and teaching the Bible as they emerge from a close reading of homiletical midrashic texts.

JWST 535 Eṣgētic Midrash. (3)

JWST 536 Readings: Aramaic Bible Translation. (3)

JWST 537 The Bible in the Talmud Bavli. (3)

JWST 538 Early Rabbinic Parshanut 1. (3) Advanced level work on one aspect of Jewish Bible interpretation in late antiquity.

JWST 539 Biblical Interpretation 1. (3) Close readings in one or more texts of early rabbinic Bible interpretation: Mishnah, Tosefta, Halakhic and Aggadic Midrashim, Talmud.

JWST 540 Biblical Interpretation 2. (3) Close reading of medieval rabbinic bible interpretation: Ashkenazi and Sefaradi exegetes, commentators, philologists, philosophers and jurists.

JWST 541 Medieval Ashkenazi Parshanut. (3) Issues, techniques and texts of Jewish Bible study in medieval France and Germany; Rashi, Qara, Rashbam, the Tosafists, etc.

JWST 542 Abraham Ibn Ezra Parsh. (3)

JWST 543 Maimonides as Parsh. (3) (Requires Departmental approval) (Restriction: Not open to students who have taken JWST 540) Biblical Interpretation in the Guide of the Perplexed and related writings.

JWST 544 Nachmanides as Parsh. (3) The interpretative issues and procedures of Nachmanides. Torah commentary examined in the context of rabbinic and kabbalistic Bible interpretation.

JWST 545 Innovative Medieval Parshanut. (3) The dynamics of Jewish Bible interpretation in medieval times and the attempts by various authors to read the Bible as an independent Hebrew document, not only in the light of the pre-medieval rabbinical exegetical tradition.

JWST 547 Mystical Biblical Interpretation. (3)

JWST 548 Medieval Parshanut. (3) Advanced level work in one aspect of Jewish Bible interpretation in medieval times.

JWST 550 The Bible in Hebrew Literature. (3) (Readings in Hebrew) Biblical themes, issues, and characters as they emerge from a comparison of Scripture and various Hebrew essays, poems, plays, short stories and novels of the 18th, 19th, and 20th centuries.

JWST 551 20th Century Parshanut. (3)

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses taught only in alternate years.

Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.

Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.

Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
• JWST 552 Judaism and Poverty.
(3) (Prerequisite: One course in Jewish Studies, Sociology or Social Work.) An introduction to the subject of poverty in Jewish literature and its influence on religions such as Christianity and Islam, and on modern, secular ideologies, especially socialism, and creative literature.

• JWST 554 Modern Jewish Biblical Scholarship.
(3) The past two centuries have witnessed the active participation of many Jewish writers in the academic enterprise of Bible scholarship. This course will explore the writings of a selection of European, American, and Israeli writers and the roles they have played in archaeological, philological, historical, literary and other critical endeavours.

JWST 555 The Bible in Jewish Philosophy.
(3) This course will explore the interplay between systematic thought and hermeneutics by examining how representative modern Jewish philosophers have read the Bible. Among figures to be discussed are: Nahman Krochmal, Hermann Cohen, Martin Buber, and A.J. Heschel.

• JWST 556 Modern Parshanut 1.
(3) (Restriction: Not open to students who have taken JWST 560) A specialized study of one aspect of modern Jewish Bible interpretation.

• JWST 558 Topics: Modern Jewish Thought.
(3)

JWST 562 Medieval Islamic and Jewish Philosophy.
(3) (Prerequisite: one course in Greek, Islamic or Jewish Philosophy, or permission of instructor.) Deals with the manifold points of contact between medieval Muslim and Jewish intellectual history. Muslim and Jewish philosophers, theologians and mystics belonged to the same currents of thought, used the same language and studied the same sources in translation, proposing similar answers to questions that arose in the context of their respective religious traditions.

• JWST 571 Biblical Literature.
(3)

• JWST 572 Aggadah in Modern Scholarship.
(3) The nature of aggadah in modern historical scholarship. Modern historical scholarship, beginning with Krochmal, Rapoport and Hayyot down to Heinemann, Stern and Boyarin, on the "problem" of midrash aggadah.

• JWST 573 History of Hebrew Bible Text.
(3) (Prerequisite: Undergraduate; permission of instructor) (Restriction: Not open to students who have taken JWST 507) The text of the Hebrew Bible as it evolved between antiquity and the most recent printed edition. Attention will be given to the accurate reconstruction of the Bible from primary and secondary witnesses: Greek and Aramaic translations, Dead Sea Scrolls, and ancient quotations, and the Massoretic notes and lists.

• JWST 574 Bible in Responsa Literature.
(3) (Requires Departmental approval) The interpretation of the Bible as it emerges from the treatment received in rabbinic responsa literature between early post-talmudic times and today. Great emphasis is placed on doing original work with the responsa, their texts and their sources.

• JWST 575 Topics in Parshanut.
(3) Advanced level work in one aspect of Jewish Bible interpretation that cuts across all periods of Jewish Bible interpretation.

• JWST 576 Jewish Family Law.
(3) Study of the complex interaction between Jewish law and both Canadian and American law in the area of marriage and divorce.

• JWST 581 Aramaic Language.
(3) (Requires Departmental approval) (Restriction: Not open to students who have taken JWST 506)

• JWST 582 Hebrew and Aramaic Philology.
(3)

• JWST 585 Tutorial: Eastern European Studies 1.
(3)

• JWST 586 Tutorial: Eastern European Studies 2.
(3)

• JWST 587 Tutorial in Yiddish Literature.
(3)

• JWST 588 Tutorial in Yiddish Literature.
(3)

• JWST 589 Tutorial in Yiddish Literature.
(3)

• JWST 590 Tutorial in Jewish Literature.
(3) Supervised research in Modern Jewish history.

• JWST 591 Tutorial in Jewish Literature.
(3) Supervised research in Modern Jewish history.

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LACS-Latin American & Caribbean St
Offered by: Inst for the St of Development

LACS 497 Research Seminar: Latin America and the Caribbean.
(3) (Restriction: Open to Program students and to others with permission of the Program Adviser.) (Ordinarily offered in alternate years) An interdisciplinary research seminar on topics of common interest to staff and students of the Latin-American and Caribbean Studies Program.

LACS 498 Honours Thesis.
(3) (Prerequisite: LACS 497 and permission of the Program Adviser) (Restriction: This course is only available to Latin American and Caribbean Studies Honours program students.) This course is designed to allow students to pursue interdisciplinary research projects under close supervision.

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LING-Linguistics
Offered by: Linguistics

• LING 199 First Year Seminar: Language and Mind.
(3) (Fall) (Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS.) (Note: Students who register for more than one FYS will be obliged to withdraw from all but one of them.) This fast paced course introduces students to challenges faced by scientists who study how language is represented in the human brain.

LING 200 Introduction to the Study of Language.
(3) (Fall and Winter) (No prerequisite) General interest course; intended for students in all fields. Topics include: linguistic competence vs. performance, language and the brain, language acquisition, sociolinguistics, historical linguistics, language universals, pragmatics.

LING 201 Introduction to Linguistics.
(3) (Fall and Winter) (No prerequisite) Primarily for students intending to take further courses in linguistics. Topics include: phonetics, phonology, morphology, syntax, and semantics. Students will be introduced to techniques of linguistic analysis.

• LING 301 Structure of English.
(3) (Fall) (Prerequisite: LING 200 or LING 201) (Students who have taken LING 371 are strongly encouraged not to take LING 301) A linguistic investigation of the grammar of Modern English, focusing on the structural characteristics of English sentence types, words and sounds.

LING 320 Sociolinguistics 1.
(3) (Winter) (Prerequisite: LING 201) A survey of language in its social context. The main focus will be on the influence of social factors like age, gender, social class and speech style on linguistic variation and change. Contact amongst languages (e.g. in Montreal) and the birth and death of languages will also be discussed.

LING 330 Phonetics.
(3) (Winter) (Prerequisite: LING 201) Intensive training in the identification and production of speech sounds. Phonemic analysis. The investigation of how sounds function within a system.
LING 331 Phonology 1.
(3) (Fall) (Prerequisite: LING 330.) Introduction to phonological theory and analysis.

LING 350 Linguistic Aspects of Bilingualism.
(3) (Winter) (Prerequisite: LING 200 or LING 201.) Linguistic competence and performance in bilinguals: the organization of the bilingual's grammar. Syntactic constraints on code mixing: How many grammars are involved? Unidirectional and bidirectional grammatical interference. Structural distance between genetically related and unrelated languages and its effect on the organization of the bilingual's grammar.

LING 355 Language Acquisition 1.
(3) (Fall) (Prerequisite: LING 201.) A critical study of the application of linguistic theory and description to first and second language learning. Topics include: the acquisition of sounds, syntax and word meanings; acquisition strategies; properties of the input; theories of first and second language acquisition.

LING 360 Introduction to Semantics.
(3) (Fall) (Prerequisites: LING 201 and PHIL 210) (Restriction: Not open to students who have taken LING 370.) Introduction to the rudiments of semantics, focusing on those aspects of meaning that are invariant across contexts and the ways in which the meaning of a complex expression is determined by the meanings of its constituents.

LING 371 Syntax 1.
(3) (Winter) (Prerequisite: LING 201.) Introduction to the study of generative syntax of natural languages, emphasizing basic concepts and formalism: phrase structure rules, transformations, and conditions on rules.

LING 390 Neuroscience of Language.
(3) (Fall) (Prerequisite: An introductory course in Linguistics, Psychology or Neuroscience at the 200 level or above.) The neurobiological study of the human language faculty. Theoretical and experimental approaches to neurolinguistics, focusing on linguistic capacity in the healthy and damaged brain.

LING 410 Structure of a Specific Language 1.
(3) (Winter) (Prerequisites: LING 330 and LING 331 and LING 371, or permission of instructor.) Application and refinement of analytical methods in phonology, morphology, and syntax to phenomena from a specific language. One focus will be the identification of empirical generalizations which form the basis for the development of the theory. The language of study will vary from year to year.

LING 415 Field Methods of Linguistics.
(3) (Winter) (Prerequisites: LING 330, LING 331 and LING 371.) Elicitation, recording and analysis of linguistic data under simulated field conditions; consideration of typical problems confronting the field analyst, preparation of a descriptive statement.

LING 417 Topics at the Interfaces 1.
(3) (Winter) (Prerequisites: LING 360 and LING 371 and permission of instructor.) Topics relevant to a linguistic interface, rotating between syntax/semantics interface and morphology/syntax interface.

LING 418 Topics at the Interfaces 2.
(3) (Fall) (Prerequisites: LING 331, LING 371 or permission of instructor.) Topics relevant to a linguistic interface, rotating between phonology/syntax interface and morphology/phonology interface.

(3) (Winter) (Prerequisites: Two of LING 331, LING 360, LING 371, LING 440.) Change linguistics underwent at the end of the 1950's both in how it conceived of itself and in the methods it used, including the philosophical change and the formal and mathematical innovations in syntax and morphology.

LING 425 Historical Linguistics.
(3) (Fall) (Prerequisites: LING 330 and LING 320 or permission of instructor.) An examination of how languages change over time and the methods that allow us to study linguistic history. Topics include: types of language change (sound change, analogy, etc.) linguistic reconstruction, the origins of modern languages.

LING 440 Morphology.
(3) (Fall) (Prerequisites: LING 330 and LING 371, or permission of the instructor) An introduction to the study of the internal structure of words. Topics will include the different ways words are formed in languages, how sound changes take place within words, how words are used in sentences.

LING 450 Laboratory Linguistics.
(3) (Winter) (Prerequisites: LING 201 and either LING 330 or LING 331, or permission of instructor.) Students with a background in some core area(s) of linguistics will learn how to test linguistic theories in the lab. The focus is on learning by doing: Students will design and carry out their own experiments, and will learn some basic statistics to evaluate them.

LING 451 Acquisition of Phonology.
(3) (Winter) (Prerequisite: LING 331; a course in language acquisition highly recommended.) Exploration of the development of prosodic and segmental structure in children, with an emphasis on current theoretically-informed work in this area.

LING 455 Second Language Syntax.
(3) (Winter) (Prerequisite: LING 301 or LING 371.) The nature of the linguistic knowledge acquired by second language learners, focusing on description and explanation of second language syntax and morphology.

LING 460 Semantics 2.
(3) (Winter) (Prerequisite: LING 360) This course elaborates on the rudiments of natural language semantics developed in LING 360.

(3) (Fall) (Prerequisites: LING 360 or PHIL 210 or permission of instructor.) (Restriction: Not open to students who have taken LING 560 or MATH 240.) This course presents the formal methods used in the study of language (namely, the theories of sets, relations, functions, partial orders, and lattices, as well as the principles of mathematical induction).

LING 480D1 (3), LING 480D2 (3) Honours Thesis.
(Students must register for both LING 480D1 and LING 480D2.) (No credit will be given for this course unless both LING 480D1 and LING 480D2 are successfully completed in consecutive terms) (LING 480D1 and LING 480D2 together are equivalent to LING 480.) Honours thesis.

LING 480N1 (3), LING 480N2 (3)
(Students must also register for LING 480N2.) (No credit will be given for this course unless both LING 480N1 and LING 480N2 are successfully completed in the same calendar year.) Honours thesis.

LING 481D1 (1.5), LING 481D2 (1.5) Joint Honours Thesis.
(Students must register for both LING 481D1 and LING 481D2.) (No credit will be given for this course unless both LING 481D1 and LING 481D2 are successfully completed in consecutive terms).

LING 483 Special Topics 1.
(3) (Fall or Winter) (Restriction: Permission of instructor.) Intensive study of a selected field or topic.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.
LING 484 Special Topics 2.
(3) (Fall or Winter) (Restriction: Permission of instructor.) Intensive study of a selected field or topic.

* LING 485 Special Topics 3.
(3) (Fall or Winter) (Prerequisite: LING 331 or LING 370 or LING 371 or permission of instructor.) Intensive study of a selected field or topic.

LING 488 Independent Study 1.
(3) (Fall or Winter) (Restriction: Permission of instructor.) Independent study of a selected field or topic.

LING 489 Independent Study 2.
(3) (Fall or Winter) (Restriction: Permission of instructor.) Independent study of a selected field or topic.

LING 499 Internship: Linguistics.
(3) (Restrictions: Limited to U2 and U3 students, with a minimum CGPA of 2.7, and permission of the department.) Internship with a host institution or organization.

* LING 520 Sociolinguistics 2.
(3) (Winter) (Prerequisite: LING 320 or permission of instructor.) A seminar on variationist "micro-sociolinguistics", including a survey of the most important primary literature on sociolinguistic variation and introduction to sociolinguistic fieldwork.

* LING 521 Dialectology.
(3) (Winter) (Prerequisites: LING 330 and LING 320.) An introduction to the theory and methods of dialectology (the study of regional variation in language) with an emphasis on connections with linguistic theory. Students will also acquire a practical knowledge of major differences among dialects of English, and will gain hands-on experience in the planning, implementation and analysis of a dialect survey.

LING 530 Acoustic Phonetics.
(3) (Fall) (Prerequisites: LING 201 and LING 330 or permission of instructor) This course will introduce students to the fundamental principles of acoustic phonetics, focusing on an acoustic model of sound production by the vocal tract and the principles and techniques of acoustic analysis of speech. Classes will be a mix of lectures and hands-on lab-based activities and class discussions.

* LING 531 Phonology 2.
(3) (Winter) (Prerequisite: LING 331 or permission of instructor.) Exploration of current issues in phonology.

* LING 555 Language Acquisition 2.
(3) (Fall) (Prerequisites: LING 355 and LING 371 and permission of instructor) A detailed overview of recent research on first language acquisition of syntax within the principles and parameters framework, concentrating on both theoretical and methodological issues.

LING 565 Pragmatics.
(3) (Winter) (Prerequisites: LING 360 and PHIL 210 or permission of the instructor.) Study of the relationship between language and its contexts of use. Topics to be examined include deixis, presupposition and implicature.

LING 571 Syntax 2.
(3) (Fall) (Prerequisite: LING 371) This course extends and refines the theory of grammar developed in LING 371, while introducing some primary literature and developments (in certain modules of the grammar such as phrase structure, wh-movement, and binding).

* LING 583 Special Topics 4.
(3) (Fall) (Restriction: Not open to students who have taken LING 486) Intensive study of a selected field or topic.

* LING 590 Language Acquisition and Breakdown.
(3) (Fall) (Prerequisites: LING 371 and either LING 355 or LING 390.) Theoretical and experimental perspectives on an imperfect language faculty, in the context of current linguistic theory and state-of-the-art experimental methods and techniques. Comparison of linguistic abilities of normally developing children, children with language disorders (e.g., SLI), and adults with disrupted linguistic abilities (e.g., aphasic patients).

**MEST-Middle East Studies**
Offered by: Arts - Dean's Office

MEST 495 Middle East Studies: Research Seminar.
(3) (Prerequisite: At least 4 MES Core courses) (Restriction: Open to final year MES Program students and to others by permission of the Program Co-ordinator) An interdisciplinary research seminar on topics of common interest to staff and students of the Middle East Studies program. As part of their contribution, students will prepare a research paper under the supervision of one or more members of staff.

MEST 496 Independent Reading and Research.
(3)

**MUAR-Music-Arts Faculty**
Offered by: Music Research

MUAR 201 Basic Materials: Western Music.
(3) (3 hours) A combination of elementary theory and ear training (sight-singing and aural recognition), and basic piano skills. Topics include: notation of pitch and rhythm, intervals, scales and modes, concept of key, triads and seventh chords, introductory melody and accompaniment writing.

MUAR 202 Basic Materials: Western Music 2.
(3) (3 hours) An introduction to the major forms and styles in Western music from the baroque to the present, with emphasis on guided listening in the classroom. The ability to read music is not a prerequisite.

* MUAR 250 Women Making Music.
(3) Repertoire composed and/or performed by women since 1920, with a focus on North America and women's participation in music in a variety of roles. Special attention will be paid to the different challenges faced by women of different races and classes, in both avant-garde and popular music traditions.

* MUAR 260 Basic Materials of Jazz.
(3) Study of contemporary and traditional jazz improvisation. Exploration of harmonic framework of music from the jazz repertoire (melody, voice leading, traditional jazz writing). Characteristic sounds of predominant scales and modes and their potential uses. Common song forms and their harmonic devices.

* MUAR 374 Special Topics in Music.
(3) (3 hours) A course whose topics will correspond to special historical events and their associated musical, political, and cultural contexts.

* MUAR 381 Music in Gothic and Renaissance Culture.
(3) An introduction to European music in late Medieval and Renaissance society: the Crusades, the age of Columbus, the Reformation, Shakespeare's England. Music in the daily lives of courtiers, clergy and commoners - music as courtly pastime, music for devotion in cathedrals, domestic music in towns and cities. Selected masterworks will be studied.

* MUAR 382 Introduction to World Music.
(3) (Prerequisite: MUAR 201 or MUAR 212) An examination of musical traditions from around the world, looking at musical genres, aesthetics, instruments, and musical systems. We will focus on how sound is framed and shaped by social settings, and how processes such as migration and oral transmission affect perception and performance.

* MUAR 384 Romanticism and the Piano.
(3) (3 hours) (Prerequisite: MUAR 201 or MUAR 211 or permission of instructor) A survey of nineteenth-century European piano music: the piano virtuoso as cult figure, the social functions of the piano, women and the piano, and developing Romantic sensibilities as expressed in piano music.
throughout the century. Repertoire may include works by Beethoven, Chopin, Liszt, and Rachmaninoff, among others.

MUAR 385 Music of the Avant-Garde. (3) (Prerequisite: MUAR 201 or MUAR 211) Explorations into post-1945 sound environments; new timbres (Berio and Crumb); "technological" music (electronic and computer music); minimalism (Glass); new aesthetics (Cage); the World Soundscape Project (Schafer); global trends (cross-cultural influences; the New Romanticism; multi-media; protest music).

MUAR 387 The Opera. (3) (Prerequisite: MUAR 201 or MUAR 211) A survey of opera from c.1600 to the present. Opera as ritual, opera as spectacle, opera as catharsis, opera as business, opera and its literary models. The continuing relevance of the operatic experience today.

MUAR 389 The Symphony and Concerto. (3) (Prerequisite: MUAR 201 or MUAR 211) An historical overview of two major genres in the current concert repertoire: baroque foundations, the Viennese achievement, Beethoven's influence, visionaries and nationalists after 1850, cross-currents in the twentieth century.

MUAR 392 Popular Music after 1945. (3) (Prerequisite: MUAR 201 or MUAR 211 or permission of instructor) An historical survey of major artists, genres, and styles in the most widespread traditions of postwar commercial music. The course will include practice in techniques of listening, discussion of the shaping institutions of commercial music, and consideration of the interaction of musical style and culture.

MUAR 393 Introduction to Jazz. (3) (Prerequisite: MUAR 201 or MUAR 211 or permission of instructor) (Restriction: Open only to non-Music majors) A survey of the development of jazz from its late 19th-century origins in America to the present day, with an introduction to musical concepts relevant to the genre and consideration of sociocultural issues.

MUAR 399 Music and Queer Identity. (3) (Prerequisite: MUAR 201 or MUAR 211 or permission of instructor) (Restriction: Open only to non-music majors) A survey of notable lesbian, gay, bisexual, transgender, queer composers and musicians in both art music and popular music, and an exploration of musical meaning from queer perspectives, covering topics such as coded expression, subcultural music-making, the value of mainstream visibility, and minority versus 'universal' aesthetics.

NAST-North American Studies
Offered by: History and Classical Studies, Arts - Dean's Office

NAST 201 Introduction to North American Studies. (3) (Team-taught Seminar) Basic concepts of North American studies with an emphasis on scholarship dealing with the United States, stressing the contribution of each discipline to the effort to understand the many dimensions of the American experience as well as relationships with Canada and Mexico.

NAST 401D1 Interdisciplinary Seminar - North American Studies. (3) (Restriction: Not open to students who are taking or have taken ENGL 529) (Students must register for both NAST 401D1 and NAST 401D2) (No credit will be given for this course unless both NAST 401D1 and NAST 401D2 are successfully completed in consecutive terms) (NAST 401D1 and NAST 401D2 together are equivalent to NAST 401) Topics Include: Is American commitment to liberty less popular and universal than her enthusiasm for equality? Is the taste for liberty among citizens of a democracy confined to a sophisticated minority, while an intense passion for equality dominates the masses? Do politicians who serve the interest of the latter thereby diminish freedom for all persons?

NAST 471 Topics in North American Studies 1. (3)

NAST 472 Topics in North American Studies 2. (3)

NAST 490 Independent Reading & Research. (3) (Restriction: Open only to U3 Major students) (It is the responsibility of the student to obtain the instructor's consent prior to registering.) Final year students wishing to pursue a specialized interest will be allowed to undertake a program of independent reading and/or research in that area under the supervision of a member of staff.

NAST 499 Arts Internships: North American Studies. (3) (Note: U2 and U3 students in good standing, normally after completing 30 credits of a 90-credit program or 45 credits of a 96-120 credit program, a minimum CGPA of 2.7, and permission from the departmental internship Adviser. This course will normally not fulfill program requirements for seminar or 400-level courses.) Internship with an approved host institution or organization.

PHIL-Philosophy
Offered by: Philosophy

PHIL 198 FYS: Knowledge and Ideas in Early Modern Philosophy. (3) (Restriction(s): Open only to newly admitted students in U0 or U1, who may take only one FYS.) (Note: Enrollment limit 25. Students who register for more than one FYS will be obliged to withdraw from all but one of them.) (Note: Language of instruction is English.) An introduction to central issues in the philosophy of the early modern period through an examination of works by, for example, Descartes, Malebranche, Spinoza, Locke, Leibniz, Berkeley and Hume.

PHIL 199 FYS: Minds, Brain, and Machines. (3) (Restriction(s): Open only to newly admitted students in U0 or U1, who may take only one FYS.) (Note: Enrollment limit 25. Students who register for more than one FYS will be obliged to withdraw from all but one of them.) (Note: Language of instruction is English.) An introduction to the philosophical foundations of the sciences of the mind.

PHIL 200 Introduction to Philosophy 1. (3) (Philosophy students may use either PHIL 200 or PHIL 201 towards their program requirements, but not both. Students may, however, take both for credit (using the second as an elective), as the content in PHIL 201 does not overlap with PHIL 200) A course treating some of the central problems of philosophy: the mind-body problem, freedom, scepticism and certainty, fate, time, and the existence of God.
PHIL 201 Introduction to Philosophy 2.
(3) (Philosophy students may use either PHIL 200 or PHIL 201 towards their program requirements, but not both. Students may, however, take both for credit (using the second as an elective), as the content in PHIL 201 does not overlap with PHIL 200) An introduction to some of the major problems of philosophy. This course does not duplicate PHIL 200.

PHIL 210 Introduction to Deductive Logic 1.
(3) (Restriction: Not open to students who are taking or have taken MATH 318) An introduction to propositional and predicate logic; formalization of arguments, truth tables, systems of deduction, elementary metaresults, and related topics.

● PHIL 220 Introduction to History and Philosophy of Science 1.
(3) A survey of the rise of the scientific outlook from the ancient Greeks to the Scientific Revolution in the Seventeenth Century.

● PHIL 221 Introduction to History and Philosophy of Science 2.
(3) A survey of the development of modern science since the Eighteenth Century.

PHIL 230 Introduction to Moral Philosophy 1.
(3) A survey of a number of historically important and influential theories. Philosophers to be discussed may include Aristotle, Hume, Bentham, Mill, and Moore.

PHIL 237 Contemporary Moral Issues.
(3) An introductory discussion of central ethical questions (the value of persons, or the relationship of rights and utilities, for example) through the investigation of currently disputed social and political issues. Specific issues to be discussed may include pornography and censorship, affirmative action, civil disobedience, punishment, abortion, and euthanasia.

PHIL 240 Political Philosophy 1.
(3) An introduction to contemporary philosophy of politics by concentrating on a number of contested concepts, such as freedom, justice and equality, in contemporary political philosophy and practice.

PHIL 242 Introduction to Feminist Theory.
(3) An introduction to feminist theory as political theory. Emphasis is placed on the plurality of analyses and proposals that constitute contemporary feminist thought. Some of the following are considered: liberal feminism, Marxist feminism, radical feminism, feminist postmodern feminism, francophone feminism, and the contributions to feminist theory by women of colour and lesbians.

PHIL 301 Philosophical Fundamentals.
(3) (Prerequisites: two previous courses in philosophy, one of which must be PHIL 210 or written consent of the Department) (Restriction: Open only to and required of Philosophy Honours and Joint Honours students) An intensive study of basic philosophical skills; reading, writing, analysis, and argumentation.

● PHIL 304 Chomsky.
(3) Philosophical aspects of Chomsky's contribution to psychology, linguistic theory, theories of human nature, and to politics.

PHIL 306 Philosophy of Mind.
(3) A survey of major positions of the mind-body problem, focusing on such questions as: Do we have minds and bodies? Can minds affect bodies? Is mind identical to body? If so, in what sense "identical"? Can physical bodies be conscious?

PHIL 310 Intermediate Logic.
(3) (Prerequisite: PHIL 210 or equivalent) A second course in Logic. NB. The course will be technical in nature, and some mathematical aptitude is essential. The emphasis is on the expressive properties of standard logical systems, including implications for the philosophy of mathematics. We will study the Completeness of First-Order Logic, then the 'limitative' theorems of Tarski and Gödel.

● PHIL 327 Philosophy of Race.
(3) An introduction to issues in the philosophy of race, for example: the metaphysical status of race; the biology of racial categories; the social construction of race; the relationship between race and racism; the phenomenology of racialized subjectivity; or, intersections of race, gender, and other identity categories.

PHIL 332 Philosophy of Religion 1.
(3)

PHIL 334 Ethical Theory.
(3) (Prerequisite: one of PHIL 230, PHIL 237, PHIL 242, PHIL 343, or written permission of the instructor) A course focusing on central questions in ethical theory such as the nature of the good and the right and the factors which determine moral rightness and wrongness.

● PHIL 336 Aesthetics.
(3) An introduction to issues central to aesthetic theory; the nature of aesthetic judgment, perception of the aesthetic object, the nature of the art object.

● PHIL 340 Philosophy of the Social Sciences 1.
(3) An introduction to foundational issues in the social sciences and to the broader implications of these issues for both philosophy and science. Topics to be discussed may include methodology in natural and social science, objectivity in the social sciences, and cultural relativism.

PHIL 341 Philosophy of Science 1.
(3) A discussion of philosophical problems as they arise in the context of scientific practice and enquiry. Such issues as the philosophical presuppositions of the physical and social sciences, the nature of scientific method and its epistemological implications will be addressed.

PHIL 343 Biomedical Ethics.
(3) An investigation of ethical issues as they arise in the practice of medicine (informed consent, e.g.) or in the application of medical technology (in vitro fertilization, euthanasia, e.g.)

PHIL 344 Medieval and Renaissance Political Theory.
(3)

PHIL 345 Greek Political Theory.
(3) (Restriction: Not open to students who have taken POLI 333) An examination of the ethical and political theories of ancient Greece, especially those of Plato and Aristotle.

PHIL 348 Philosophy of Law 1.
(3) (Restriction: This course is intended for students with a non-professional interest in law, as well as for those considering law as a profession) A discussion of the nature of justice and law, and of the relationship between them.

PHIL 350 History and Philosophy of Ancient Science.
(3) Topics in ancient pure mathematics (geometry and number theory), "mixed mathematics" (astronomy, music theory, optics, mechanics), and/or natural science (including medicine), studied with a view to philosophical issues raised by the content of ancient science and/or by the logic of scientific argument.

PHIL 353 The Presocratic Philosophers.
(3) An examination of the surviving fragments of the presocratic philosophers and schools of philosophy, as well as later reports of their views.

PHIL 354 Plato.
(3) An examination of some of the philosophical problems (those in logic, epistemology, metaphysics, and ethics, e.g.) found in a selection of Plato's dialogues.

PHIL 355 Aristotle.
(3) An examination of selected works by Aristotle. The course considers issues in moral philosophy as well as those found in the logical treatises, the Physics and Metaphysics, and in the philosophy of mind.

PHIL 356 Early Medieval Philosophy.
(3) An examination of selected works in the Christian, Islamic and Jewish traditions. Topics in moral and political philosophy, logic and metaphysics, philosophical psychology and epistemology, philosophy of science, and philosophical theology may be discussed.

PHIL 357 Late Medieval and Renaissance Philosophy.
(3) A discussion of the works of selected philosophers from the late Middle Ages and Renaissance. Topics for discussion may include God's knowledge of future contingents, issues in medieval logic, political and moral issues, and philosophical theology.
PHIL 361 17th Century Philosophy.
(3) An examination of the work of such seventeenth-century philosophers as Descartes, Hobbes, Gassendi, Malebranche, Leibniz, and the Cambridge Platonists.

PHIL 362 18th Century Philosophy.
(3) A survey of eighteenth century philosophy, especially British philosophy. Attention is given to fundamental metaphysical, epistemological, and moral issues as reflected in the work of such philosophers as Locke, Shaftesbury, Berkeley, Hutcheson, Butler, Hume and Reid.

PHIL 366 18th and Early 19th Century German Philosophy.
(3) (Prerequisite: PHIL 360 or PHIL 361 is recommended) An examination of the works of such philosophers as Kant, Fichte, Jacob, Schelling, and Hegel.

PHIL 367 19th Century Philosophy.
(3) (Prerequisite: A previous course in philosophy is recommended) An examination of the works of such 19th century philosophers as Mach, Helmholtz, Dedekind, Frege, Marx, Kierkegaard, Schopenhauer, Nietzsche, Mill and Bradley.

PHIL 370 Problems in Analytic Philosophy.
(3) An introduction to the central questions in the analytic tradition, through the works of important early figures in that tradition. Philosophers to be discussed may include: Frege, Russell, Wittgenstein, Ramsay, Carnap and the "logical positivists".

PHIL 375 Existentialism.
(3) (Prerequisite: one course in philosophy) This course will examine the nature of existentialist thought as represented in various philosophical and literary texts. Particular themes to be examined include freedom, alienation, responsibility and choice, and the nature of self.

PHIL 397 Tutorial 01.
(3) (Restriction: Open to second year Full Honours students in Philosophy and to other students, with consent of the Department)

PHIL 398 Tutorial 02.
(3) (Restriction: Open to second year Full Honours students in Philosophy and to other students, with consent of the Department)

PHIL 401 Advanced Topics in Logic 1.
(3) (Prerequisite: PHIL 310 or equivalent) A course focusing on central results in logic that are of philosophical significance.

PHIL 411 Topics in Philosophy of Logic and Mathematics.
(3) (Prerequisites: PHIL 210 or the equivalent, and one intermediate course in philosophy) A course focusing on some philosophical issue (e.g., the nature of numbers or the relation of truth to provability) as it arises in the study of mathematics and logic.

PHIL 415 Philosophy of Language.
(3) (Prerequisites: PHIL 210 or equivalent and one intermediate course in philosophy) An examination of central notions in the philosophy of language (reference, meaning, and truth, e.g.), the puzzles these notions give rise to, and the relevance of these notions to such questions as: What is language? How is communication possible? What is understanding? Is language rule-governed.

PHIL 419 Epistemology.
(3) (Prerequisite: PHIL 210 or equivalent and one intermediate course in philosophy) A discussion of central topics in the theory of knowledge. The questions addressed in the course may include: What is knowledge? Do we have any knowledge? What is the relation between knowledge and belief? When is belief justified? Is all knowledge conscious knowledge.

PHIL 421 Metaphysics.
(3) (Prerequisites: PHIL 210 or equivalent and one intermediate course in philosophy) An examination of central questions in metaphysics in their historical and contemporary forms. Topics may be chosen from such issues as: personal identity, the nature of space and time, the nature of events and properties, possible worlds, and the problem of realism.

PHIL 432 Philosophy of Religion 2.
(3)

PHIL 434 Ethics 2.
(3) (Prerequisite: PHIL 334 or written permission of the instructor) Advanced discussion of one or more themes in ethics. Topics will vary from year to year but may include such issues as the nature of rights and duties, moral realism and anti-realism, or the place of reason in morality.

PHIL 436 Aesthetics 2.
(3) (Prerequisite: PHIL 336 or written permission of the instructor) An advanced discussion of issues in aesthetics.

PHIL 440 Philosophy of Social Sciences 2.
(3) (Prerequisite: PHIL 340 or written permission of the instructor) An advanced course on such topics as methodology of, or explanation, in the social sciences or models of rationality. Topics will vary from year to year.

PHIL 441 Philosophy of Science 2.
(3) (Prerequisite: PHIL 341 or written permission of the instructor) An analysis of some key philosophical ideas in science and technology, e.g. problem, explanation, forecast, testability and truth.

PHIL 442 Topics in Feminist Theory.
(3) (Prerequisite: PHIL 242 and one intermediate course in philosophy) Advanced discussion of topical and central themes in feminist theory.

PHIL 444 Early Modern Political Theory.
(3) (Prerequisite: at least one course in political philosophy) A survey of political and moral theory from the Reformation to the French Revolution including Luther, Montaigne, Descartes, Hobbes, Locke, Rousseau and Smith.

PHIL 445 19th Century Political Theory.
(3) (Prerequisite: at least one course in political philosophy) (Restriction: Not open to students who have taken POLI 434) An examination of various strands of political theory since Rousseau, concentrating on such themes as the understanding of modernity and theories of liberal society.

PHIL 446 Current Issues in Political Philosophy.
(3) (Prerequisite: at least one course in political philosophy) Selected issues in contemporary political philosophy.

PHIL 450 Major Philosophers 1.
(3) (Prerequisite: one intermediate course in philosophy) This seminar will give detailed attention to the work of one philosopher or to a single philosophical theme addressed by several philosophers. Emphasis will be placed on understanding how the metaphysical, epistemological, and moral views of a figure or figures are internally related. Topic will vary from year to year.

PHIL 452 Later Greek Philosophy.
(3) (Prerequisite: PHIL 354 or PHIL 355) (Restriction: Not open to students who have taken POLI 351) An examination of some of the major post-Aristotelian schools of philosophy. Texts from the Peripatetic, Stoic, Epicurean, Sceptical, Platonic, and medical traditions may be considered. Problems in logic, ethics, physics, epistemology, and metaphysics will be addressed.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses taught only in alternate years.
Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
Denotes courses not available as Education electives.
Denotes courses with limited enrolment.
PHIL 453 Ancient Metaphysics and Natural Philosophy.
(3) An examination of central themes of ancient metaphysics and/or natural philosophy as treated by two or more contrasting philosophers or philosophical traditions - possibly including Plato and/or Aristotle, and possibly some Hellenistic or post-Hellenistic schools.

PHIL 454 Ancient Moral Theory.
(3) An examination of central themes of ancient moral theory as treated by two or more contrasting philosophers or philosophical traditions - possibly including Plato and/or Aristotle, and possibly some Hellenistic or post-Hellenistic schools.

PHIL 460 Major Philosophers 2.
(3) This seminar will give detailed attention to the work of one philosopher or to a single philosophical theme addressed by several philosophers. Emphasis will be placed on understanding how the metaphysical, epistemological, and moral views of a figure or figures are internally related.

• PHIL 470 Topics in Contemporary Analytic Philosophy.
(3) (Prerequisite: PHIL 370, PHIL 415 or written permission of instructor) An advanced discussion of major themes in the analytic tradition.

PHIL 474 Phenomenology.
(3) (Prerequisite: one intermediate course in philosophy) A study of phenomenology from a historical and thematic perspective. The course will typically involve the study of central thinkers such as Husserl, Heidegger, or Merleau-Ponty, with an examination of the nature and development of the phenomenological movement.

PHIL 475 Topics in Contemporary European Philosophy.
(3) (Prerequisite: one intermediate course in philosophy) Advanced discussion of selected themes in contemporary European philosophy.

PHIL 480 Topics in the History of Philosophy.
(3) (Prerequisite: one intermediate course in philosophy) An advanced discussion of some theme and/or problem in the history of philosophy.

• PHIL 481 Topics in Philosophy.
(3)

PHIL 497 Tutorial 04.
(3) Open to third year Full Honours students in Philosophy, and to other students, with consent of the Department.

• PHIL 497N1 (1.5), PHIL 497N2 (1.5) Tutorial 04.
(Students must also register for PHIL 497N2) (No credit will be given for this course unless both PHIL 497N1 and PHIL 497N2 are successfully completed in a twelve month period) (PHIL 497N1 and PHIL 497N2 together are equivalent to PHIL 497) Open to third year Full Honours students in Philosophy, and to students in Philosophy, and to Department.

PHIL 498 Tutorial 05.
(3) Open to third year Joint Honours students in Philosophy, and to other students, with consent of the Department.

• PHIL 498N1 (1.5), PHIL 498N2 (1.5) Tutorial 05.
(Students must also register for PHIL 498N2) (No credit will be given for this course unless both PHIL 498N1 and PHIL 498N2 are successfully completed in a twelve month period) (PHIL 498N1 and PHIL 498N2 together are equivalent to PHIL 498) Open to third year Joint Honours students in Philosophy, and to other students, with consent of the Department.

• PHIL 499 Tutorial 06.
(6) Open to third year Full Honours students in Philosophy, and to other students, with consent of the Department.

PHIL 499D1 (3), PHIL 499D2 (3) Tutorial 06.
(Students must register for both PHIL 499D1 and PHIL 499D2) (No credit will be given for this course unless both PHIL 499D1 and PHIL 499D2 are successfully completed in consecutive terms) (PHIL 499D1 and PHIL 499D2 together are equivalent to PHIL 499) Open to third year Full Honours students in Philosophy, and to other students, with consent of the Department.

PHIL 499N1 (3), PHIL 499N2 (3) Tutorial 06.
(Students must also register for PHIL 499N2) (No credit will be given for this course unless both PHIL 499N1 and PHIL 499N2 are successfully completed in a twelve month period) (PHIL 499N1 and PHIL 499N2 together are equivalent to PHIL 499) Open to third year Full Honours students in Philosophy, and to other students, with consent of the Department.

PHIL 506 Seminar: Philosophy of Mind.
(3) (Prerequisite: PHIL 306.) (Restriction: Open only to students as indicated above and to Cognitive Science Minors) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department.) An advanced course devoted to specific topics in the philosophy of mind.

• PHIL 507 Seminar: Cognitive Science.
(3) (Prerequisites: PHIL 306, PHIL 415 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced discussion of a topic of philosophical interest arising from contemporary empirical work in cognitive science.

PHIL 510 Seminar: Advanced Logic 2.
(3) (Prerequisite: PHIL 310 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department)

PHIL 511 Seminar: Philosophy of Logic and Mathematics.
(3) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department)

• PHIL 515 Seminar: Philosophy of Language.
(3) (Prerequisite: PHIL 415 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a topic in the philosophy of language.

• PHIL 519 Seminar: Epistemology.
(3) (Prerequisite: PHIL 420 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a topic in the theory of knowledge. Subject varies from year to year.

• PHIL 521 Seminar: Metaphysics.
(3) (Prerequisite: PHIL 421 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a topic in metaphysics.

• PHIL 534 Seminar: Ethics.
(3) (Prerequisite: PHIL 334 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department)

• PHIL 536 Seminar: Aesthetics.
(3) (Prerequisite: PHIL 336 or PHIL 436 or permission of the instructor) (Restriction: Open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a specific topic in the area of aesthetics and/or the philosophy of art.

• PHIL 540 Seminar: Philosophy and Social Sciences.
(3)
● PHIL 541 Seminar: Philosophy of Science.  
(3) (Prerequisite: PHIL 441 or other requirements specified by the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a topic in the philosophy of science.

PHIL 542 Seminar: Feminist Theory.  
(3) (Prerequisite: Any 400-level, 3 credit course in political philosophy, or permission of the instructor.) An advanced course devoted to a specific topic in feminist theory: e.g., a major figure; or theme, such as sex/gender, embodiment, race, subjectivity, agency, representation, politics, nature/culture, discourse and power; or a feminist approach to the history of philosophy, ethics, social/political philosophy, epistemology, philosophy of science, phenomenology, or metaphysics.

PHIL 543 Seminar: Medical Ethics.  
(3) (Prerequisite: PHIL 343 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a particular philosophical problem as it arises in the context of medical practice or the application of medical technology.

● PHIL 544 Political Theory.  
(3) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department)

● PHIL 548 Seminar: Philosophy of Law.  
(3) (Prerequisite: PHIL 348 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a particular topic in the philosophy of law. Subject varies from year to year.

● PHIL 550 Seminar: Ancient Philosophy 1.  
(3)

● PHIL 551 Seminar: Ancient Philosophy 2.  
(3) (Prerequisite: at least one course in ancient philosophy and the specific requirements of individual instructors) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course on a philosopher or philosophical issue articulated in antiquity.

PHIL 556 Seminar: Medieval Philosophy.  
(3) (Prerequisite: PHIL 345 or PHIL 357 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course devoted to a particular topic in medieval philosophy. Subject varies from year to year.

● PHIL 561 Seminar: 18th Century Philosophy.  
(3) (Prerequisite: PHIL 361 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course on an eighteenth-century philosopher or philosophical issue.

PHIL 567 Seminar: 19th Century Philosophy.  
(3) (Prerequisite: PHIL 366 or PHIL 367 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course on 19th-century philosophy or philosophical issue.

PHIL 570 Seminar: Contemporary Analytic Philosophy.  
(3) (Prerequisite: PHIL 370 or PHIL 415 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course on some major analytic philosopher, or some issue of central importance in the analytic tradition. Subject varies from year to year.

PHIL 575 Seminar: Contemporary European Philosophy.  
(3) (Prerequisite: PHIL 475 or written permission of the instructor) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) An advanced course on contemporary European philosophy or some important issue in the Continental tradition.

(3) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department)

● PHIL 581 Seminar: Problems of Philosophy.  
(3) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department)

● PHIL 590 Seminar: Special Topics in Philosophy.  
(3) (Prerequisites: one course in philosophy) (Restriction: Seminars are open only to graduate students and final year Philosophy Majors, Honours and Joint Honours students, except by written permission of the Department) Psychoanalysis: a critical examination. Depending on the interests of the class, areas covered would include: psychoanalytic epistemology, psychoanalysis and the pre-socratics, psychoanalysis and tragedy, reasons versus causes in psychoanalysis, hermeneutics, psychoanalytic truth, self-deception, irrationality, paradox, creativity, internal object world and its relation to external objects.

PHWR-Philosophy & Western Religions  
Offered by: Arts - Dean's Office

● PHWR 300 Philosophy & Western Religions 1.  
(3) (Restrictions: Open to students in Philosophy & Western Religions, Islamic Studies, Jewish Studies, Philosophy, Religious Studies, and to students of other units with permission of the instructor.) Introduction to the encounter between philosophy and the Abrahamic religions, Judaism, Christianity, and Islam, from Antiquity to the 12th Century, covering the philosophical sources (Plato to Neoplatonism), the religious sources (Bible to Qu'ran), and their manifold syntheses in the thought of theologians, philosophers and mystics within the three religious traditions.

● PHWR 301 Philosophy & Western Religions 2.  
(3) (Prerequisite: PHWR 300 or permission of the instructor.) (Restrictions: Open to students in Philosophy & Western Religions, Islamic Studies, Jewish Studies, Philosophy, Religious Studies, and to students of other units with permission of the instructor.) Introduction to the encounter between philosophy and the three Abrahamic religions, Judaism, Christianity, and Islam, from the 13th Century to the Enlightenment, covering the manifold syntheses of philosophical and religious ideas in thinkers from the Later Middle Ages, the Renaissance, the 17th Century and the Enlightenment.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

● Denotes courses taught only in alternate years.
● Professional Practice (Stage) in Dietetics involving special prerequisites.
● Indicates that departmental approval/permission must be obtained by a student prior to registration.
† Denotes courses not available as Education electives.
 Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
◊ Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
POLI 211 Comparative Government and Politics.
(3) (Note: The area in the field of Comparative Politics is Developed Areas.) Introduction to the study of comparative politics as it applies both to the developed world and developing countries. The course presents the basic concepts and approaches used in the field of comparative politics and it focuses on patterns of similarity and difference in a way political institutions and processes are structured in a wide variety of national contexts.

POLI 212 Government and Politics - Developed World.
(3) (Note: The area in the field of Comparative Politics is Developed Areas.) The nature of politics in a few selected nations of the industrialized world, applying the concepts introduced in POLI 211 to specific national contexts. Countries studied will be drawn principally from Europe and North America.

POLI 221 Government of Canada.
(3) (Note: The field is Canadian Politics.) An examination of the central governmental institutions, including parliament, federalism, and the judiciary.

POLI 222 Political Process and Behaviour in Canada.
(3) (Note: The field is Canadian Politics.) An introduction to contemporary political life in Canada that examines how demands are identified and transmitted through the political systems. Emphasis will be placed on: the Canadian political culture; socialization and political participation; the electoral system; elections and voting; the role and structure of political parties; and the influence of organized interest.

POLI 226 La vie politique québécoise.
(3) (Restriction: An ability to understand and read French is required: writing and speaking ability are not.) (This course is offered in English and French in alternate years. For 2011-12 it will be offered in English.) (Note: The field is Canadian Politics.) Une introduction à la vie politique québécoise à travers l’étude des institutions, des idéologies et des comportements politiques. Une attention particulière sera accordée à la structure et aux changements dans le système politique québécoise.

POLI 227 Developing Areas/Introduction.
(3) (Note: The area in the field of Comparative Politics is Developing Areas.) An introduction to Third World politics. A comparative examination of the legacies of colonialism, the achievement of independence, and contemporary dynamics of political and socio-economic development in Africa, Asia and Latin America. Topics include modernization, dependency, state-building and national integration, revolution, the role of the military, and democratization.

POLI 231 Introduction to Political Theory.
(3) (Note: The field is Political Theory.) The course introduces students to political theory through critical examination of classic texts in the history of political thought. In addition to gaining an understanding of several different traditions of political thought, students are encouraged to develop their skills in textual interpretation, critical reasoning, and essay-writing.

POLI 232 Modern Political Thought.
(3) (Note: The field is Political Theory.) The course introduces students to modern political thought through a critical examination of some of the key political ideologies and concepts of contemporary political discourse. Themes vary from year to year, and may include liberalism, conservatism, socialism, feminism, democracy, power, justice, and freedom.

POLI 243 International Politics of Economic Relations.
(3) (Note: The field is International Politics.) An introduction to international relations, through examples drawn from international political economy. The emphasis will be on the politics of trade and international monetary relations.

POLI 244 International Politics: State Behaviour.
(3) (Note: The field is International Politics.) Offers a comprehensive introduction to the behaviour of nation states. Explores how states make foreign policy decisions and what motivates their behaviour. Other covered topics include the military and economic dimensions of state behaviour, conflict, cooperation, interdependence, integration, globalisation, and change in the international system.

POLI 311 Techniques of Empirical Research.
(3) An introduction to empirical political research. Among the topics considered are the formulation of research problems, the selection of samples, interviewing, questionnaire construction, and the analysis and interpretation of data.
POLI 315 Approaches to Political Economy.
(3) (Prerequisite: POLI 211 or POLI 212 and one preferably university-level economics course) (Note: The area in the field of Comparative Politics is Developed Areas.) Influential traditions in political economy. Focus on how these attempted to integrate the economic and political. Application of economic analysis to social and political phenomena ("social choice"). Recent efforts to combine the deductive logic of economics with comparative empirical analysis of actors in different institutional settings. Extension to the international political economy.

POLI 318 Comparative Local Government.
(3) (Prerequisite: POLI 211 or POLI 212 or written permission of instructor) (Note: The area in the field of Comparative Politics is Developed Areas; also in the field of Canadian Politics.) An examination of the organization and conduct of local government in Canada, the United States, and selected European countries. Attention to theories of local government, the criteria for comparative analysis, the provision of public goods and bads, urban political patterns and the constitution of new institutional arrangements to deal with "urban crises" in North America.

POLI 319 Politics of Latin America.
(3) (Prerequisite: A basic course in Comparative Politics or a course on the region or written permission of the instructor) (Note: The area in the field of Comparative Politics is Developed Areas.) This course will deal with the dynamics of political change in Latin America today.

POLI 320 Issues in Canadian Democracy.
(3) (Prerequisite: At least one other course in Canadian or Comparative Government and Politics or permission of instructor) (Note: The field is Canadian Politics.) Critical analysis of selected issues and debates in Canadian politics, including citizen participation, electoral system effects, party financing, office-seeking, approaches to representation, and direct democracy and non-party alternatives. Topics are examined from both the perspective of the general population and the specific experience of women and ethno-racial minorities.

POLI 321 Issues: Canadian Public Policy.
(3) (Prerequisite: at least one other course in Canadian or Comparative Politics) (Note: The field is Canadian Politics.) The Canadian political process through an analysis of critical policy issues in community development, welfare state, education, and institutional reforms in public service delivery systems. Diagnostic and prescriptive interpretations of public choices in a federal-parliamentary regime.

POLI 322 Political Change in South Asia.
(3) (Prerequisite: A basic course in Comparative Politics or a course on the region or written permission of the instructor) (Note: The area in the field of Comparative Politics is Developed Areas.) This course presents the basic concepts and approaches used in the study of contemporary South Asia. It addresses the theoretical accounts of political change and the institutions of government; the effect of institutional modernization on provincial governments; the role of provincial sub-systems within the Canadian political system.

POLI 323 Developing Areas/China and Japan.
(3) (Prerequisite: A basic course in Comparative Politics or a course on the region or written permission of the instructor) (Note: The area in the field of Comparative Politics is Developing Areas.) A survey of political and governmental policy and institutions in relation to ideology in the People's Republic of China and post-1945 Japan.

POLI 324 Developing Areas/Africa.
(3) (Prerequisite: A basic course in Comparative Politics or a course on the region or written permission of the instructor) (Note: The area in the field of Comparative Politics is Developing Areas.) The government and politics of African states south of the Sahara with reference to the ideological and institutional setting as influenced by the forces of tradition and the impact of Western colonialism.

POLI 325D1, POLI 325D2 (3) Government and Politics: United States.
(Prerequisite: POLI 211 or POLI 212 or written permission of the instructor) (Note: The area in the field of Comparative Politics is Developed Areas.) (Students must register for both POLI 325D1 and POLI 325D2.) (No credit will be given for this course unless both POLI 325D1 and POLI 325D2 are successfully completed in consecutive terms) A survey of the American political system, with emphasis on the constitutional and philosophical setting, the institutions and their interactions, the political process, public policy issues, and political change.

POLI 326 Provincial Politics.
(3) (Prerequisite: A basic course in Canadian Government or Politics or permission of the instructor) (Note: The field is Canadian Politics.) The effect of regional and provincial culture on the operation of political parties and the institutions of government; the effect of institutional modernization on provincial governments; the role of provincial sub-systems within the Canadian political system.

POLI 327 Comparing European Democracies.
(3) (Prerequisites: POLI 211 or POLI 212, or POLI 227) (Note: The field is Comparative Politics.) An introduction to the study of contemporary European politics. The course presents the basic concepts and approaches used in the field of European comparative politics and examines patterns of similarity and difference across Europe, as well as some current political debates in Europe.

POLI 328 Russian and Soviet Politics.
(3) (Prerequisite: POLI 211, POLI 212, or written consent of instructor; Soviet history helpful but not required) (Note: The area in the field of Comparative Politics is Developed Areas.) This course explores the institutions of the Soviet system and pressures to reform this system. Examines specific changes made to the system through democratization and market reform. Compares these changes to similar transitions in other countries to assess possible twists in Russian's political future.

POLI 330 Law and Courts in Europe.
(3) (Prerequisite: POLI 211 or POLI 212) (Restrictions: Not open to students who have taken POLI 339 in 2006-2007 or 2007-2008) Judicial politics in continental Europe, including theoretical accounts of the rule of law, judicial independence, power, and accountability, and the judicialization of politics. Empirical examples will be drawn from both Western and Eastern Europe countries, as well as the constitutional and the ordinary judiciaries.

POLI 331 Politics in East Central Europe.
(3) (Prerequisite: Some prior related course i.e. Comparative Politics or East European History or written consent of the instructor. Recommended POLI 329.) Analysis of recent dramatic changes in East Central Europe in light of the historical development and current structure of these states, their relationship to their societies, with emphasis on diversity and its sources.

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Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
POLI 333 Western Political Theory 1.
(3) (Prerequisite: POLI 231 or POLI 232 or PHIL 240 or at least two political science courses at the 300 level; or permission of the instructor) (Note: The field is Political Theory.) The major themes and writers in the political theory of classical antiquity. The political ideas of Thucydides, Plato, Aristotle, and the Hellenistic philosophers will be explored through the significant texts of this period.

POLI 334 Western Political Theory 2.
(3) (Prerequisite: POLI 333 or written permission of the instructor. POLI 333 should be taken before this course) (Note: The field is Political Theory) Medieval and renaissance political philosophy, from Saint Augustine to Sir Thomas More. Scholastic and neo-scholastic political thought, natural law and natural rights, as well as civic and northern humanism, republicanism and liberty. Twentieth century work on similar concepts will be used.

POLI 336 Le Québec et le Canada.
(3) (Restrictions: An ability to understand and read French is required; writing and speaking ability are not. Not open to students who have taken QCST 336.) (Note: The field is Canadian Politics.) Comment les Canadiens anglais et les Québécois se perçoivent-ils? Les différences culturelles entre les deux groupes. Les relations politiques et économiques entre les deux groupes. L'impact de la Révolution Tranquille. La place des francophones et des anglophones dans la vie collective. Les projets de réaménagement du cadre politique.

- POLI 337 Canadian Public Administration.
(3) (Prerequisite: at least one other course in Canadian government or politics) (Note: The field is Canadian Politics.) Organization and practice of public administration at the federal provincial and local level in Canada. Contrasting theories/techniques of public administration and policy, organization of field offices for delivery of essential public services, governments as employers, and institutional and policy changes to resolve crisis inherent in “the paradoxical view of bureaucracy”.

- POLI 339 Comparative Developed: Topics 1.
(3) (Prerequisite: a basic course in Comparative Politics or a course on the region or written permission of the instructor) Selected aspects of the Third World. In any given year the course will concentrate either on a particular region or on a relevant thematic problem.

- POLI 339 Comparative Developed: Topics 1.
(3) (Prerequisite: a basic course in Comparative Politics or written permission of the instructor) (Note: The area in the field of Comparative Politics is Developed Areas.) Selected aspects of politics in developed countries.

POLI 340 Developing Areas/Middle East.
(3) (Prerequisite: A basic course in Comparative Politics or a course on the region or written permission of the instructor) (Note: The area in the field of Comparative Politics is Developing Areas.) An examination of the societies, political forces and regimes of selected countries of the Eastern Arab world (Egypt, Syria, Lebanon, Jordan, Palestine, Saudi Arabia).

POLI 341 Foreign Policy: The Middle East.
(3) (Prerequisite: A 200- or 300-level course in International Relations or Middle East politics or permission of the instructor) (Note: The field is International Politics.) An examination of the changing regional security environment and the evolving foreign policies and relationships of Arab states in three areas - relations with non-Arab regional powers (Israel, Iran), inter-Arab relations, Great Power relations. The course will focus particularly on Egypt, Syria, Iraq and Saudi Arabia.

POLI 342 Canadian Foreign Policy.

POLI 344 Foreign Policy: Europe.
(3) (Prerequisite: A basic course in International or European Politics or written consent of instructor. POLI 346 would be a helpful preparation for this course) (Note: The field is International Politics.) An examination of the evolution of the European system since 1945.

POLI 345 International Organizations.
(3) (Prerequisite: A basic course in International Politics or written consent of instructor) (Note: The field is International Politics.) The politics and processes of global governance in the 21st century, with a special emphasis on the United Nations system.

POLI 346 American Foreign Policy.
(3) (Prerequisite: POLI 244 or a course in American history) (Note: The field is International Politics.) An exploration of American foreign policy from 1945 to the present. Topics to be addressed are the origins of the Cold War, deterrence, strategy and arms control, American intervention in Latin America and Vietnam, U.S. policy in the Post Cold War era - Gulf War, Haiti, Somalia, Yugoslavia and relations with Japan.

POLI 347 Arab-Israel Conflict, Crisis, Peace.
(3) (Prerequisite: 160-243 prior to 1997-98; or POLI 244) (Note: The field is International Politics.) Concepts - protracted conflict, crisis, war, peace; system, subsystem; Conflict-levels of analysis; historical context; images and issues; attitudes, policies, role of major powers; Crises-Wars configurations of power; crisis models; decision-making in 1956, 1967, 1973, 1982 crisis-wars; conflict crisis management; Peace-Making - pre-1977; Egypt-Israel peace treaty; Madrid, Oslo, Israel-Jordan peace; prospects for conflict resolution.

- POLI 349 Foreign Policy: Asia.
(3) (Prerequisites: POLI 243 or 244, or permission of the instructor.) (Note: The field is International Politics.) An overview of the foreign policies of two rising powers - China and India - in addition to Japan, covering the historical evolution, goals and determinants of their foreign policies, interactions with the rest of Asia and the world, and efforts at institutionalised cooperation in South and East Asia.

POLI 351 The Causes of Major Wars.
(3) (Prerequisite: POLI 243, POLI 244 or permission of the instructor.) (Note: The field is International Politics.) Examination of the competing theoretical explanations for major wars, application of the theories to the outbreak of World War I.

- POLI 352 International Policy/Foreign Policy: Africa.
(3) (Prerequisite: A basic course in International or African politics or written consent of the instructor) A study of international politics in Africa; including Africa in the U.N., the Organization of African Unity, African regional groupings and integration, Africa as a foreign policy arena and African inter-state conflict and diplomacy.

- POLI 354 Approaches to International Political Economy.
(3) (Prerequisite: A basic course in International Relations and an introductory course in Macro Economics) (Note: The field is International Politics.) The course presents theoretical approaches to understanding change in the international political economy.

- POLI 355 Politics: Contemporary Europe.
(3) (Prerequisite: POLI 212 or written permission of the instructor) (Note: The area in the field of Comparative Politics is Developed Areas.) An examination of the political institutions and processes in today's Europe, concentrating on the member-states of the European Union and on the Union itself. The course is organized thematically rather than on a country-by-country basis.

- POLI 359 Topics in International Politics 1.
(3) (Prerequisite: A basic course in International Relations) (Note: The field is International Politics.) A specific problem area in International Relations.

POLI 360 Security: War and Peace.
(3) (Prerequisite: A basic course in International Relations or written permission of the instructor) (Note: The field is International Politics.) Focuses on international security and strategies of war and peace in historical and comparative frameworks. Topics include case studies of 20th century wars,
conventional and nuclear strategy, and various approaches to peace.

- **POLI 361 Political Participation in Comparative Perspective.**
  (3) (Prerequisite: POLI 211 or POLI 212.) (Note: The area in the field of Comparative Politics is Developed Areas.) Exploration of how citizens engage in politics. Theories and examples of current forms of political participation and mobilization will be introduced, including voting, party membership, transnational movements, political consumerism, culture jamming and internet activism. Examples are drawn from Europe and North America and sometimes from the developing world.

- **POLI 362 Political Theory and International Relations.**
  (3) (Prerequisites: A 200 or 300-level course in political theory, and POLI 243 or POLI 244) (Note: The fields are International Politics and Political Theory.) Key contributions of political theory to the study and practice of international relations. Three prevailing theoretical traditions will be examined: realism, 'international society', and cosmopolitanism. Key practical issues to be explored from these perspectives include war, humanitarian intervention, economic globalization, environment, and gender.

- **POLI 363 Contemporary Political Theory.**
  (3) (Prerequisite: A 200 or 300-level course in political theory) (Note: The field is Political Theory.) This course explores fundamental currents of thought in political philosophy. Topics will vary from year to year, and may include issues such as classical liberalism and its opponents, the foundations of socialism and Marxism, rational choice theory and its critics.

- **POLI 364 Radical Political Thought.**
  (3) (Prerequisite: A 200- or 300-level course in political theory) Radical themes in contemporary political thought and action.

- **POLI 365 Democratic Theory.**
  (3) (Prerequisite: Prerequisite: A 200- or 300-level course in political theory) (Note: The field is Political Theory.) A series of lectures and seminars on democratic theory.

- **POLI 366 Topics in Political Theory 1.**
  (3) (Prerequisites: A 200- or 300-level course in political theory) (Note: The field is Political Theory.) A specific problem area in Political Theory.

- **POLI 367 Liberal Political Theory.**
  (3) (Prerequisite: POLI 231, 232 or POLI 332) The development of liberal political thought and theories of justice, including a selection of authors from: Locke, Montesquieu, Smith, Constant, Kant, Mill, Tocqueville, Berlin, Hayek, Rawls, Nozick, Walzer, and Kymlicka, as well as some of their critics.

- **POLI 369 Politics of Southeast Asia.**
  (3) (Prerequisite: 200 level course in comparative politics (POLI 211, POLI 212, or POLI 227).) Topics covered include: colonialism, democracy, authoritarianism, war, economic development, social development, overseas Chinese, ethnicity, religion, populism, and international relations, as they apply to Southeast Asian politics.

- **POLI 371 Challenge of Canadian Federalism.**
  (3) (Prerequisite: at least one course in Canadian politics (Note: The field is Canadian Politics.) An analysis of the origins, evolution and nature of federalism in Canada. Topics and themes will include the impact of federalism on political institutions, the effect of different regional perspectives, and the issues and conflicts that currently confront Canadian federalism.

- **POLI 372 Aboriginal Politics in Canada.**
  (3) (Prerequisite: At least one course in Canadian politics such as, POLI 221 or POLI 222 OR Permission of the instructor.) (Restriction: Not open to students who have taken POLI 372 prior to W06.) The relationship of aboriginal politics to larger debates and literatures within political science, such as citizenship theory, federalism, and collective action. Subjects covered include Canada's treaty history, constitutional changes, and aboriginal political development.

- **POLI 378 The Canadian Judicial Process.**
  (3) (Prerequisite: POLI 221 or POLI 222 or permission of the instructor) (Restriction: Not open to students who took 160-379 (1990-91) or 160-427 (1989-90)) (Note: The field is Canadian Politics.) An examination of the structure of the judiciary and its role in the Canadian political process. Topics include the nature of judicial power and its constitutional framework in Canada, the structure and function of courts, judicial recruitment and personnel, judicial policy-making and the political role of the Supreme Court under the Charter of Rights and Freedoms.

- **POLI 379 Topics in Canadian Politics.**
  (3) (Prerequisite: A basic course in Canadian Government and Politics) (Note: The field is Canadian Politics.) Topics in Canadian politics.

- **POLI 410 Canadian Political Parties.**
  (3) (Prerequisite: At least one other course in Canadian Politics) (Note: The field is Canadian Politics.) This course examines Canadian political parties and party systems, stressing patterns of historical development, party organization and finance, relationships with social movement, and the impact of Canadian federalism.

- **POLI 411 Immigration and Multiculturalism in Canada.**
  (3) (Prerequisite: at least one course in Canadian politics, preferably at the 300 or 400 level, or permission of the instructor) (Note: The field is Canadian Politics.) An examination of various aspects of Canadian politics that stems from the country's experience with immigration and ethnic and racial diversity.

- **POLI 412 Canadian Voting/Public Opinion.**
  (3) (Prerequisite: at least one course in Canadian politics, preferably at the 300 or 400 level, or permission of the instructor) (Note: The field is Canadian Politics.) A critical examination of major debates within the literature on Canadian voting behaviour and public opinion.

- **POLI 414 Society and Politics in Italy.**
  (3) (Prerequisite: a basic course in Comparative Politics and preferably an upper level course or written permission of the Instructor) (Note: The area in the field of Comparative Politics is Developed Areas.) Analysis of modern Italian political development in comparison to other Western and Mediterranean countries. What makes Italian politics unique, what makes it resemble that of other countries.

- **POLI 417 Health Care in Canada.**
  (3) (Prerequisites: POLI 221 or POLI 221) (Note: The field is Canadian Politics.) This course analyzes the theory and politics of health policy and institutions, comparing provincial models and contextualizing Canadian systems with international perspectives from the U.S. and Europe. Current health reform debates will be explored, particularly those involving federal-provincial relations, sustainable financing and the role of the state in social protection.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.
POLI 419 Transitions from Communism.  
(3) (Prerequisites: One 200- or 300-level course in Comparative Politics required or written permission of the instructor; a Political Science, History or Sociology course on the USSR or Eastern Europe after WW II strongly recommended.) (Note: The area in the field of Comparative Politics is Developed Areas.) Selected problems facing the Post-Soviet world. Themes include: new political institutions, parties, and groups; economic reform; social problems; ideological changes; the rise of ethnonationalism; linkages with the West.

POLI 422 Developing Areas/Topics 2.  
(3) (Prerequisites: a basic course and preferably an upper level course in comparative politics) (Note: The field is Comparative Politics in Developing Areas.) A specific problem area in the Comparative Politics of Developing Areas. Topic for 1998-99: Peace-Building and Post-Conflict Reconstruction.

POLI 423 Politics of Ethno-Nationalism.  
(3) (Prerequisites: one 300 or 400-level course in comparative politics; and one 300 or 400-level course on developing areas (any discipline.) The same course can fulfill both requirements) (Note: The area in the field of Comparative Politics is Developing Areas.) Theories of ethno-nationalism examined in light of experience in Asia, Middle East and Africa. Topics include formation and mobilization of national, ethnic and religious identities in colonial and post-colonial societies; impact of ethno-nationalism on pluralism, democracy, class and gender relations; means to preserve tolerance in multicultural societies.

POLI 424 Media and Politics.  
(3) (Prerequisites: POLI 211 or POLI 212; and at least 3 credits in Political Science at the 300 level) (Note: The area in the field of Comparative Politics is Developing Areas; also in the field of Canadian Politics.) The role of media in domestic and international politics, with reference to recent studies in political science. Themes in the study of mass media and politics in developed democracies.

POLI 425 Topics in American Politics.  
(3) (Prerequisite: POLI 325) (Note: The area in the field of Comparative Politics is Developing Areas.) This course involves a detailed analysis of a limited area of American politics and government.

POLI 427 Selected Topics: Canadian Politics.  
(3) (Prerequisite: A basic course and preferably an upper level course as well in Canadian Government and Politics or permission of the instructor) (Note: The field is Canadian Politics.) Selected problem areas in Canada's political process, political culture, constitutional development, and machinery of government.

POLI 431 Nations and States/Developed World.  
(3) (Prerequisite: POLI 211 or POLI 212 or POLI 328) (Note: The area in the field of Comparative Politics is Developed Areas.) The role of nationalism in European and North American political development. Topics include: nationalism and state-formation, secession and sub-state nationalism, war and nationalism, federal and consociational arrangements in multi-national societies.

POLI 432 Selected Topics: Comparative Politics.  
(3) (Note: The field is Comparative Politics in Developed Areas.)

POLI 433 History of Political/Social Theory 3.  
(3) (Prerequisite: POLI 231 or 232 or 333 or 334 or written permission) (Note: The field is Political Theory) Early modern political philosophy, from Luther to Rousseau and Burke. Resistance theories of the 16th century, Hobbes and Locke, the Enlightenment and the French Revolution. Twentieth century work on concepts developed in this period such as rights, revolution, legitimacy, democracy, authority and liberty.

POLI 434 History of Political/Social Theory 4.  
(3) (Prerequisite: POLI 433) (Note: The field is Political Theory) A consideration of selected writers and themes of late 19th and 20th century political theory. Writers include Hegel, Clausewitz, Marx, Mill, Nietzsche, Lenin, Rowis, Foucault, and Habermas. The rise of industrial society, scientism, the romantic revolt, revolutionary movements, socialism and liberal-democracy.

POLI 435 Identity and Inequality.  
(3) (Prerequisite: 300 level course in comparative politics or related social science course.) Inequality is often particularly durable between groups whose boundaries are based on assumed ancestry - e.g., the major ethnic categories in former European settler colonies, castes in South Asia. This course explores ongoing changes in the relationship between identity and social, economic and political inequality in some of these contexts.

POLI 437 Politics in Israel.  
(3) (Prerequisite: POLI 211 or POLI 212. Recommended JWST 366) (Note: The area in the field of Comparative Politics is Developed Areas.) An analysis of the nature and development of the Israeli political system, including historical background, Zionist ideology, the electoral system, the political parties, the institutions of government, constitutional issues, and religion and politics. The relationship between domestic politics and foreign policy will also be explored.

POLI 438 British Politics.  
(3)

POLI 440 Civil-Military Relations.  
(3) (Prerequisites: POLI 244 or permission of instructor.) Civil-military relations is a key component of any society's political system. This course considers both domestic issues of political stability, such as the threat of coups d'etat, as well as international ones, such as the use of force.

POLI 441 IPE: Trade.  
(3) (Prerequisites: POLI 243 or permission of the instructor.) (Note: The field is International Politics.) Politics of international trade, such as the international rules governing trade in goods, the functioning of international bodies such as the WTO, and the domestic sources of these international policies.

POLI 442 International Relations of Ethnic Conflict.  
(3) (Prerequisite: POLI 244 or permission of instructor) Issues related to the internationalization of ethnic conflict, including diasporas, contagion and demonstration effects, intervention, irredentism, the use of sanctions and force. Combination of theory and the study of contemporary cases.

POLI 444 Topics in International Politics 2.  
(3) (Prerequisite: An upper level course in International Politics or written permission of the instructor) (Note: The field is International Politics.) A specific problem area in International Politics.

POLI 445 International Political Economy: Monetary Relations.  
(3) (Prerequisite: POLI 243 or permission of the instructor.) (Note: The field is International Politics.) Advanced course in international political economy; the politics of international of monetary relations, such as international rules governing international finance, the reasons for and consequences of financial flows, and the functioning of international financial bodies such as the IMF and World Bank.

POLI 450 Peacebuilding.  
(3) (Prerequisites: previous courses in comparative politics/developing areas and international relations. Internet research skills are strongly recommended) (Note: The area in the field of Comparative Politics is Developing Areas; also in the field of International Politics.) An examination of transitions from civil war to peace, and the role of external actors (international organizations, bilateral donors, non-governmental organizations) in support of such transitions. Topics will include the dilemmas of humanitarian relief, peacekeeping operations, refugees, the demobilization of ex-combatants, transitional elections, and the politics of socio-economic reconstruction.

POLI 451 The European Union.  
(3) (Prerequisite: one course each in International Relations and Comparative Politics) (Note: The area in the field of Comparative Politics is Developed Areas; also in the field of International Politics.) The emergence of the EU and its innovative institutions and policies will be studied through lectures, discussions, and a simulation (of a European Council or Parliament session). Emphasis upon current debates about the EU's developing identity, its internal political economy; its
institutions of ‘multilevel’ governance, and its external relation.

- **POLI 459 Topics in Political Theory 2.**
  (3) (Prerequisite: A 300- or 400-level course in political theory) (Note: The field is Political Theory.) This course will deal with a specific problem area in Political theory.

- **POLI 461 Advanced Techniques of Empirical Research.**
  (3) (Prerequisite: POLI 311) A lab course introducing some advanced statistical methods used in political research. Topics include univariate and bivariate descriptive statistics, and regression analysis, taught alongside current topics across political science subfields.

- **POLI 469 Politics of Regulation.**
  (3) (Prerequisite: POLI 221 or POLI 222 and at least one 300-level course or above in Canadian politics, or permission of instructor) (Note: The field is Canadian Politics.) Issues arising from the use of regulation as a governing instrument including origins of regulation, costs and benefits, political accountability and regulatory change including deregulation. Issues will be explored through examination of broadcasting and telecommunications regulation and their convergence in the “Information Highway”.

- **POLI 470 Philosophy, Economy and Society.**
  (3)

- **POLI 473 Democracy and the Market.**
  (3) (Prerequisite: A course in Comparative Politics or written permission of the instructor) (Note: The area in the field of Comparative Politics is Developing Areas.) The course examines the relationship between economic and political change by focusing on dual processes of economic reform and democratization. The inter-play of societal, state-level and international actors, and the possible trade-offs involved, are explored using examples from Latin America, the former Soviet bloc, and other developing areas.

- **POLI 474 Inequality and Development.**
  (3) (Prerequisite: A basic course in Comparative Politics or a course on the region or written permission of the instructor.) (Note: The area in the field of Comparative Politics is Developing Areas.) The political structures and social forces underlying poverty and inequality in the developing world; the historical roots of inequality in different regions, varying manifestations of inequality (class, region, ethnicity, gender), and selected contemporary problems.

- **POLI 475 Social Capital in Comparative Perspective.**
  (3) (Prerequisite: POLI 211 or POLI 212.) (Note: The area in the field of Comparative Politics is Developing Areas.) Social capital as an important societal resource that helps to overcome collective action and development problems. Introduction to the roots of the concept of social capital, and discussion on how and why this resource influences the political and economic life of countries, regions, cities and individuals.

- **POLI 478 The Canadian Constitution.**
  (3) (Prerequisites: POLI 378 or an upper level course in Canadian Politics or permission of the instructor) (Restriction: Not open to students who took 160-427 in 1989-90 or 1991) (Note: The field is Canadian Politics.) An examination of legislative and judicial protection of rights and liberties in Canada. Topics to be covered include civil rights and the division of powers; the implied bill of rights theory; the 1960 Bill of Rights; establishment and enforcement of human rights legislation; and the Charter of Rights and Freedoms.

- **POLI 490 Independent Reading and Research 1.**
  (3) Final year Honours students wishing to pursue a specialized interest will be allowed to undertake a program of independent reading and/or research in that area under the supervision of a member of staff. Such programs may be undertaken by students either individually or in small groups. It is the responsibility of the student to obtain the instructor’s consent prior to registration.

- **POLI 499 Honours Essay.**
  (3) (Restriction: Open to Honours students only) Regular meetings between students and professors, the writing of a well researched essay and its oral defense. The essay should demonstrate some experience with primary sources, the ability to explore various theoretical perspectives as well as to organize and present a set of arguments in a systematic and thorough manner.

- **POLI 521 Seminar: Canadian Politics and Government.**
  (3) (Restriction: Open to graduate students, final year Honours students, and other advanced undergraduates with the permission of the instructor) (Prerequisite: At least one 300 or 400-level course in Canadian Politics) (Note: The field is Canadian Politics.) Selected problems of Canadian socio-economic and political structures; political culture; constitutional development, and governmental structure.

- **POLI 522 Seminar: Developing Areas.**
  (3) (Prerequisite: At least one upper-level course in the politics of developing areas.) (Restriction: Open to graduate students, final year honours students, and other advanced undergraduates with permission of instructor) (Note: The field is Comparative Politics in Developing Areas.) State-society relations in the developing world through historical, comparative, and analytical perspectives, focusing on: (1) theories and concepts of the state; (2) state capacity and incapacity; (3) state formation.

- **POLI 524 Seminar: Developed Areas.**
  (3) (Prerequisite: At least one upper-level course in the politics of developed areas) (Restriction: Open to graduate students, final year Honours students, and other advanced undergraduates with the permission of the instructor) (Note: The area in the field of Comparative Politics is Developed Areas.)

- **POLI 561 Seminar: Political Theory.**
  (3) (Prerequisite: At least one upper-level course in political philosophy) (Restriction: Open to graduate students, final year Honours students, and other advanced undergraduates with the permission of the instructor) (Note: The field is Political Theory.) A topic in political philosophy such as democracy, liberty, property or nationalism, or a political philosopher, is studied to enable students to research a topic in depth, to present their papers to the seminar, and to engage in and profit from discussion and debate.

- **POLI 575 Seminar: International Politics.**
  (3) (Restriction: Open to graduate students and final year Honours students only) (Note: The field is International Politics.) Topic: Protracted Conflicts & Enduring Rivalries. A research seminar dealing with topics in the field of international politics.

- **POLI 599 Internship: Political Science.**
  (3) (Restriction: Open, with permission, to Honours, Joint Honours and Majors students in years U2 and U3, and graduate students. This course does not count as a 500-level seminar under the Honours requirements.) The internship shall consist of a minimum of 150 hours of work over a period of 12 weeks, plus a major research project based on the internship. The major project will ordinarily consist of a major research paper, plus a substantial written record of the work conducted during the internship.

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QCST-Quebec Studies
Offered by: Arts - Dean's Office
QCST 300 Quebec Culture and Society.
(3) (Required course for all students in Quebec Studies. Open to all students.) A multidisciplinary course that looks at Quebec with an aim of integrating key social, economic, cultural, political and historical aspects.
• QCST 336 Quebec Studies Summer Seminar.
(6) (Prerequisite: Intermediate level placement test required or permission of the instructor.) A multidisciplinary seminar that looks at a theme or topic concerning Quebec Society with the goal of integrating key social, economical, cultural, political and historic aspects.
• QCST 440 Contemporary Issues in Quebec.
(3) (Prerequisite(s): QCST 300 or permission of the instructor) A multidisciplinary study seminar that presents and explores contemporary issues of Quebec Society.
• QCST 472D1 (3), QCST 472D2 (3) Tutorial/Travaux dirigés.
(Obligatoire pour les étudiants(es) inscrit(s) au concentration majeur en Études sur le Québec.) (Required for U3 students completing a Major Concentration in Quebec Studies.) Students must register for both QCST 472D1 and QCST 472D2. (No credit will be given for this course unless both QCST 472D1 and QCST 472D2 are successfully completed in consecutive terms) Sous la direction du Directeur du Programme d'études sur le Québec ou d'un professeur, l'étudiant(e) choisit un sujet sur lequel il (elle) travaille pendant une année et rédige un essai d'une cinquantaine de pages. Under the supervision of either the Director of Quebec Studies Program or a professor, the student chooses a topic on which she/he works for a year and then submits an essay of approximately 50 pages.

RUSS-Russian
Offered by: Russian & Slavic Studies
• RUSS 199 FYS: Russia - Past and Present.
(3) (Given in English.) (Restriction: Open only to students in U0 or U1. Students may take only one First Year Seminar.) Headliner trends in the sociopolitical, artistic and intellectual life of today's Russia from a historical-cultural perspective. Issues include Russia as myth, ultimate truth, enigma, student of the West, creator of socially and philosophically committed art. Texts to be taken from literature, film, the graphic arts, pop and electronic culture.
• RUSS 210 Elementary Russian Language 1.
(3) (Fall) Reading, grammar, translation, oral practice.
• RUSS 211 Elementary Russian Language 2.
(3) (Winter) (Prerequisite: RUSS 210 or equivalent) Russian Language; continuation of RUSS 210.
• RUSS 215 Elementary Russian Language Intensive 1.
(6) (Fall) (Restriction: Departmental approval required) (Restriction: Not open to students who are taking or have taken RUSS 210, RUSS 211 or equivalent) An intensive introduction to the Russian language which covers the first year of the normal level, i.e. RUSS 210/RUSS 211 in one semester. The basic grammatical structures are covered.
• RUSS 217 Russia's Eternal Questions.
(3) (Fall) (Given in English) Exploration of cultural archetypes defining continuity and change from Peter the Great to the present; the Russian national identity, double-faith, Western and Slavophile influences, Mother Russia, superfluous men and the Eternal Feminine, anarchism, the avant-garde, Stalinism. Recurring

RUSS 218 Russian Literature in Revolution.
(3) (Fall or Winter) (Prerequisite: None, but some background in Russian 20C history is helpful) (Given in English) The Russian twentieth-century literary dynamic up to the watershed of Stalin's death (1953). Carving out cultural territory against ideological polemics, revolutionary versus traditional values, the explosion of avant-garde experimentation under mounting critical conformism as reflected in major works and authors (Mayakovsky, Babel, Bulgakov, Platonov and others).

RUSS 223 Russian 19th Century: Literary Giants 1.
(3) (Fall) (Given in English) Russian literature from Pushkin and Gogol to early Dostoevsky. More than a sequence of representative works featuring superfluous men, fallen women and other literary types, it is a coherent tradition developing in a dialogue with itself and its historical and cultural context.

RUSS 224 Russian 19th Century: Literary Giants 2.
(3) (Winter) (Given in English) Russian literature in transition between the Age of the Novel and Symbolism. From Turgenev's and Tolstoy's psychological realism to Dostoevsky's fantastic realism; from Chekhov's breaking genre rules of the short story and the drama to Bely's experimental prose.
• RUSS 255D1 (3), RUSS 255D2 (3) Introduction to Polish.
(Fall, Winter) (Students must register for both RUSS 255D1 and RUSS 255D2. ) (No credit will be given for this course unless both RUSS 255D1 and RUSS 255D2 are successfully completed in consecutive terms) An introduction to the study of Polish with emphasis on basic Polish grammar, conversation, reading and writing. Please consult Department prior to registration.

RUSS 300 Russian for Heritage Speakers 1.
(3) (Fall) (Prerequisite: Permission of the Department) (Restriction: Not open to students who have taken RUSS 210, RUSS 211, RUSS 310, RUSS 311 and RUSS 316.) (Given in Russian) For native speakers of Russian who have not had full academic instruction in the language. Focus on grammatical structure and syntax, the formalities of written Russian and appreciation of the language's stylistic diversity. Multimedia approach including excerpts from literary works, current newspapers, television news broadcasts, films and cartoons.

RUSS 301 Russian for Heritage Speakers 2.
(3) (Winter) (Given in Russian) (Prerequisites: RUSS 300 or permission of the instructor) (Restrictions: Not open to students who have taken RUSS 210, RUSS 211, RUSS 310, RUSS 311 and RUSS 316) For native speakers of Russian who have not had full academic instruction in the language. Focus on complex grammatical structures, syntax, and stylistically differentiated uses of vocabulary in written and spoken Russian. Multimedia approach including excerpts from literary works, current newspapers, Internet sources, and films.

RUSS 310 Intermediate Russian Language 1.
(3) (Fall) (Prerequisite: RUSS 210 and RUSS 211 or equivalent) (Restriction: Not open to students who are taking RUSS 316) Reading, translation, conversation.
• RUSS 311 Intermediate Russian Language 2.
(3) (Winter) (Prerequisite: RUSS 310 or equivalent) (Restriction: Not open to students who are taking or have taken RUSS 316) Reading, translation, conversation.

RUSS 316 Intermediate Russian Language Intensive 2.
(6) (Winter) (Prerequisite: RUSS 215 or equivalent) (Restriction: Requires departmental approval) (Restriction: Not open to students who have taken RUSS 310, RUSS 311 or are taking RUSS 311) Continuing the intensive program of RUSS 215 this course covers the second year of the normal
level, i.e. RUSS 310/RUSS 311, in one semester. The basic grammatical structures are covered.

- **RUSS 327 Outlines 19th Century Russian Literature: Romantic Period.**
  (3) (Fall) (Prerequisite: RUSS 215 or equivalent, or permission of the Department) (The course will be conducted to some extent in Russian) A general introduction to Russian prose, poetry and drama in the 19th Century. Selected texts will be read in the original and discussed.

- **RUSS 328 Outlines 19th Century Russian Literature: Russian Realism.**
  (3) (Winter) (Prerequisite: RUSS 327 or permission of the Department) (The course will be conducted to some extent in Russian) A general introduction to Russian prose, poetry and drama in the 19th Century. Selected texts will be read in the original and discussed.

- **RUSS 330 Introduction to Soviet Russian Literature before WWII.**
  (3) (Winter) (Prerequisite: RUSS 215 or equivalent, or permission of the Department) (The course will be given mainly in Russian) Selected texts will be read in the original and discussed.

- **RUSS 331 Introduction to Soviet Russian Literature after WWII.**
  (3) (Fall) (Prerequisite: RUSS 330 or equivalent.) (The course will be given mainly in Russian) Selected texts will be read in the original and discussed.

- **RUSS 385 Russian Drama.**
  (3) (Fall) (Prerequisite: Permission of the Department) (Restriction: Not open to students who have taken RUSS 410, 411.) Major pieces of the Russian stage in the nineteenth and twentieth centuries; the emergence of a uniquely Russian dramatic sensitivity against prevailing European trends; the literary word in a public, political and/or avant-garde forum.

- **RUSS 390 Special Topics in Russian.**
  (3) (Fall) Exploration of a significant author, trend, theme or theory in modern Russian culture, including but not limited to the interface between literary works, the graphic and performing arts, ideology and national identity.

- **RUSS 400 Advanced Russian Language 1.**
  (3) (Fall) (Prerequisite: RUSS 310 and RUSS 311 or equivalent or permission of the Department) (Given in Russian) Advanced practical Russian grammar and composition. May include reading a variety of texts and media from classical to contemporary (literature, newspapers, TV, film, etc.).

- **RUSS 401 Advanced Russian Language 2.**
  (3) (Winter) (Prerequisite: RUSS 400 or equivalent) (Given in Russian) Advanced practical Russian grammar and composition. May include reading a variety of texts and media from classical to contemporary (literature, newspapers, TV, film, etc.).

- **RUSS 415 Advanced Russian Language Intensive 1.**
  (6) (Fall) (Prerequisite: RUSS 215/RUSS 316 or RUSS 310/RUSS 311) (Requires departmental approval) Continuing the intensive program of RUSS 215 and RUSS 316, students will complete their study of the fundamental structure of modern literary Russian, including the morphology and syntax of the nominal and verbal systems.

- **RUSS 416 Advanced Russian Language Intensive 2.**
  (6) (Winter) (Prerequisite: RUSS 415) (Requires departmental approval) Continuing the Intensive program of RUSS 215/316, students will complete their study of the fundamental structure of modern literary Russian, including the morphology and syntax of the nominal and verbal systems. Besides developing an oral facility in the language, this course introduces the student to the study of literature by analyzing literary texts of prerevolutionary and Soviet Russia to see the use and verbal systems, syntax, stylistic levels, historical changes.

- **RUSS 450 Reading the 20th Century.**
  (3) (Fall) (Prerequisite: Permission of instructor) (Restriction: Not open to students who have taken RUSS 451) (Given in Russian) A century of upheaval; the tug of war between idealists and现实ists; the spiritualists and the traditionalists (neo-realism, socialist realism). Major trends, polemics, authors and milestones; literature as the fulcrum of change and the conscience of the age.

- **RUSS 452 Advanced Russian Language and Syntax 1.**
  (3) (Fall) (Prerequisite: RUSS 415 and RUSS 416 or equivalent or permission of the Department) Prose composition, translation, essay writing. An introduction to Russian stylistics.

- **RUSS 453 Advanced Russian Language and Syntax 2.**
  (3) (Winter) (Prerequisite: RUSS 452 or equivalent) Prose composition, translation, essay writing. An introduction to Russian stylistics.

- **RUSS 455 History of Modern Russian Language.**
  (3) (Fall) (Prerequisite: Permission of instructor) (Note open to students who have taken RUSS 456) (Course given principally in Russian) An examination of the structure of modern Russian using a historical, comparative approach.

- **RUSS 458 Development Russian Novel before Turgenev.**
  (3) (Fall) (Prerequisite: RUSS 415 and RUSS 416 or equivalent or permission of the Department) (Given in Russian) The development of the Russian novel before Turgenev. Reading texts will be chosen from the prose works of Karamzin, Bestuzhev, Pushkin, Lermontov, and Gogol.

- **RUSS 459 Russian Novel Pushkin-Gogol.**
  (3) (Winter) (Prerequisite: RUSS 458 or equivalent) (Conducted in Russian) The development of the Russian novel from Pushkin to Gogol. Reading texts will be chosen from the prose works of Pushkin and Gogol.

- **RUSS 460 Russian Novel 1860-1900 1.**
  (3) (Fall) (Given mainly in Russian) (Prerequisite: RUSS 452 and RUSS 453 or equivalent or permission of the Department) The Golden Age of the novel in Russian Literature. The major works of Turgenev and Dostoevsky will be read in the original.

- **RUSS 461 Russian Novel 1860-1900 2.**
  (3) (Winter) (Given mainly in Russian) (Prerequisite: RUSS 460) The Golden Age of the novel in Russian literature. The major works of Tolstoy will be read in the original.

- **RUSS 465 Russian Modernism 1.**
  (3) (Fall) (Prerequisite: Permission of the Department) (Given mainly in Russian) Russian poetry, prose, drama, the essay and other media from the Silver Age to WWI, from Chekhov to Blok and Belyi. The crisis of realism, decadence, symbolism, and its waning traced through the eternal feminine, the devil, the city, poetry as pure creation, and millennial crisis.

- **RUSS 466 Russian Modernism 2.**
  (3) (Winter) (Prerequisite: Permission of the Department) (Given mainly in Russian) Russian poetry, prose, drama, the manifesto and other media from WWI to 1930. The avant-garde responds to revolution. Acmeism, futurism, and other movements modelled and transcribed in the works of Khebnikov, Akhmatova, Pasternak, Mandel'shtam, Tsvetaeva, Maiakovskii, Platonov, Kharmas, Bulgakov and others. Agitprop, utopianism and total art.

- **RUSS 468 The Age of Pushkin.**
  (3) (Winter) (Prerequisite: RUSS 315 and 316 or equivalent or permission of the instructor) (Restriction: Not open to students who have taken RUSS 469) Examination of the major trends and concerns of the first third of the nineteenth century; the flowering of poetry and prose inspired by Pushkin and his contemporaries.

**Always check at [www.mcgill.ca/study/u](http://www.mcgill.ca/study/u) for the most up-to-date information on whether a course is offered.**

- Denotes courses taught only in alternate years.
- Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
- Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
- Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
RUSS 470 Individual Reading Course.
(3) (Fall) (Prerequisite: Permission of instructor) Supervised reading under the direction of a member of staff.

RUSS 471 Independent Research.
(3) (Fall or Winter) (Prerequisite: Permission of instructor) Supervised research under the direction of a member of staff.

• RUSS 475 Special Topics in Russian Culture.
(3) (Winter) (Prerequisite: Permission of instructor) Examination of a significant author, trend, theme or theory in modern Russian culture, including but not limited to the interface between literary works, the graphic and performing arts, ideology and national identity.

RUSS 490 Honours Seminar 01.
(3) (Fall or Winter) (Prerequisite: Permission of the Department) (Restriction: Honours or Joint Honours in Russian and Slavic Studies) This course is intended to allow students to bring together their knowledge of the general area of Russian & Slavic Studies and produce a synthesis appropriate to their level of development. The major exercise will consist of the writing of a research paper displaying their competence.

RUSS 491 Honours Seminar 02.
(3) (Fall or Winter) (Prerequisite: RUSS 490) This course is intended to allow students to bring together their knowledge of the general area of Russian & Slavic Studies and produce a synthesis appropriate to their level of development. The major exercise will consist of the writing of a research paper displaying their competence.

RUSS 499 Internship: Russian and Slavic Studies.
(3) (Fall or Winter) (Prerequisite: Permission of the departmental Internship Advisor.) (Restriction: Open to U2 and U3 students after completing 30 credits of a 90 credit degree program or 45 credits of a 93-120 credit program, a minimum CGPA of 2.7, and permission of the departmental Internship Advisor. This course will normally not fulfill program requirements for seminars or 400-level courses.) Internship with an approved host institution or organization.

• RUSS 500 Special Topics.
(3) (Given in English) (Prerequisite: Permission of Department) Focus on a critical theme, author or work, as determined by the current research interests of faculty and visiting faculty.

RUSS 510 High Stalinist Culture.
(3) (Winter) (Prerequisite: Permission of instructor) (Given in English) Novels, films, art, architecture, pageantry, rhetoric and routine of the Stalinist 1930s-40s, including socialist realism as an aesthetic doctrine, utopian blueprint, target of parody, amalgam of a submerged avant-garde and state-controlled pop culture, precursor of the postmodernist simulacrum, self-proclaimed international style and/or uniquely Russian 20th-century project.

• RUSS 585 Woman in Russian Culture.
(3) Representation of and the discourse on woman by women in Russian literature and cultural thought from medieval times to the present. Topics include the age of Empresses, the salon, Decembrist wives; the Eternal Feminine, fallen woman, new woman, the rise of women’s prose in post-Soviet Russia.

SDST-Sexual Diversity Studies
Offered by: Inst for Gender, Sex & Fem St

SDST 250 Introduction: Sexual Diversity Studies.
(3) A general introduction to the study of sexual and gender diversity and sexuality from a range of perspectives and across a variety of disciplines.

SDST 450 Independent Reading & Research.
(3) (Prerequisite: SDST 250.) (Restriction: Program students in Sexual Diversity Studies. Program and adviser approval required.) Advanced reading course and independent research project under the supervision of an instructor on aspects of Sexual Diversity Studies.

SDST 499 Internship: Sexual Diversity Studies.
(3) (Prerequisite: Permission of the departmental Internship Advisor) (Restriction: Restricted to students enrolled in the Minor Concentration in Sexual Diversity Studies.) (Open to U2 and U3 students after completing 30 credits of a 90 credit program or 45 credits of a 96-120 credit program, a minimum CGPA of 2.7. This course will normally not fulfill program requirements for seminars or 400-level courses.) Internship with an approved host institution or organization.

SOCI-Sociology
Offered by: Sociology

SOCI 210 Sociological Perspectives.
(3) Major theoretical perspectives and research methods in sociology. The linkages of theory and method in various substantive areas including: the family, community and urban life, religion, ethnicity, occupations and stratification, education, and social change.

SOCI 211 Sociological Inquiry.
(3) (Prerequisite or Corequisite: SOCI 210) An introductory review of methods of sociological research including research design, elementary quantitative data analysis, observation, and use of official statistics. Detailed examination of published examples of the use of each of the major techniques of data analysis and collection.

• SOCI 219 Sociology of Culture.
(3) A survey of theoretical approaches and substantive topics in the culture. Topics include: norms and values in national cultures; negotiation of cross-cultural interpersonal exchanges; structural codes and cultural classifications; production constraints on cultural objects; the differential reception of cultural products.

SOCI 222 Urban Sociology.
(3) Comparative analysis of the process of urbanization in Europe, North America and the Third World; effects of urbanization upon social institutions and individuals; theories of urbanization and urbanism; the Canadian urban system; urban problems in comparative view.

SOCI 225 Medicine and Health in Modern Society.
(3) Socio-medical problems and ways in which sociological analysis and research are being used to understand and deal with them. Canadian and Québec problems include: poverty and health; mental illness; aging; death and dying; professionalism; health service organization.

SOCI 230 Sociology of Ethnic Relations.
(3) (Prerequisite: SOCI 210 or permission of instructor) An introduction to the sociological study of minority groups in Canada. The course will explore the themes of racism, prejudice, and discrimination, ethnic and racial inequalities, cultural identities, multiculturalism, immigration. Theoretical, empirical, and policy issues will be discussed. While the focus will be primarily on Canada, comparisons will be made with the United States.

SOCI 234 Population and Society.
(3) Introduction to the reciprocal linkages in the social world between population size, structure and dynamics on the one hand, social structure, action and change on the other. An examination of population processes and their relation to the social world.

SOCI 235 Technology and Society.
(3) An examination of the extent to which technological developments impose constraints on ways of arranging social relationships in bureaucratic organizations and in the wider society: the compatibility of current social structures with the effective utilization of technology.

SOCI 247 Family and Modern Society.
(3) (Course for the Women's Studies Concentrations) Contrasting family in Canada and in the United States for the recent past. Examination of theories on family; changes and diversity of family life; complex relationships among marriage, work, and family; domestic violence; various types of family experience; and the future of the family.

SOCI 250 Social Problems.
(3) Contrasting theoretical approaches to social problems.

SOCI 254 Development and Underdevelopment.
(3) (Summer) Competing theories about the causes of underdevelopment in the poor countries. Topics include the impact of geography, the population explosion, culture and national character, economic and sexual inequalities, democracy and dictatorship. Western imperialism and multi-national corporations, reliance on the market, and development through...
local participation, cooperation, and appropriate technology.

**SOCI 265 War, States and Social Change.**
(3) The impact of war on society in agrarian and industrial epochs. Particular attention is given to the relationship between war and economic development, social classes, nationalism, and democratization.

**SOCI 270 Sociology of Gender.**
(3) This course focuses on social changes in gender relations, gender inequalities and the social construction of gender. Using sociological theories of gender, different social institutions and spheres of society will be analyzed. Topics such as gender socialization, gender relations in work, family, education, and media will be covered.

**SOCI 304 Sociology of the Welfare State.**
(3) (Prerequisites: SOCI 210 and SOCI 211 or instructors permission.) The origins and history of the welfare state and the differences between types of welfare state regimes; debates about and empirical evidence for current developments in welfare state programs. Special attention will be paid to the interconnections between the evolution of the labour market and the resulting pressures on the welfare state.

**SOCI 305 Socialization.**
(3) The effects of early childhood experiences upon adult personality, and the transmission of social roles and values. Topics include: social reinforcement theories, modeling theories, maternal deprivation, culture and personality studies, cognitive development and infantile sexuality. The processes of sex role socialization.

**SOCI 307 Sociology of Globalization.**
(3) (Prerequisite: SOCI 210 or Permission of Instructor) Core sociological and political issues of the globalization debate, such as trade, global production networks and the new international division of labor, global inequalities, the ecological crisis, the reform of international institutions, and the emergence of the global justice movement.

**SOCI 309 Health and Illness.**
(3) Health and Illness as social rather than purely bio-medical phenomena. Topics include: studies of ill persons, health care occupations and organizations; poverty and health; inequalities in access to and use of health services; recent policies, ideologies, and problems in reform of health services organization.

**SOCI 310 Sociology of Mental Disorder.**
(3) Data and theories of mental disorders. Transcultural psychiatry, psychiatric epidemiology, stress, labelling, mental health care delivery, the family, positive mental health and the "sick" society in the framework of sociological theories of stratification, organization and social psychology.

**SOCI 312 Sociology of Work and Industry.**
(3) The development of the world of work from the rise of industrial capitalism to the postindustrial age. Responses of workers and managers to changing organizational, technological and economic realities. Interrelations between changing demands in the workplace and the functioning of the labour market. Canadian materials in comparative perspective.

**SOCI 318 Television in Society.**
(3) TV in the social communication process: a surveyor of the environment, a socializer, a definer of "public" realities and a forum of debate. Topics include: TV reporting of political and international events, differences in French/English outlooks, and the portrayal of women.

**SOCI 320 Topics in Sociology 2.**
(3) (Prerequisite: SOCI 210 or Permission of instructor.) Examination of selected topics in sociological theory and research.

**SOCI 321 Gender and Work.**
(3) (Course for the Women's Studies Concentrations) Focus on men's and women's work in North American societies, historically and contemporarily, in order to understand the dynamisms of gender (in)equality and outside of the home. Topics explored include: housework; the relationship(s) between gender, organizations and bureaucracy; emotional labour; occupational segregation and stratification; sexual harassment; and work-family policy.

**SOCI 322 Sociology of Literature.**
(3) (Prerequisite: SOCI-219.) A review of sociological research on the production, readership, and broader social implications of literature. Topics will include: the issue of whether literature "reflects" society, the use of literature in establishing collective identities, and reading as a social practice.

**SOCI 326 Political Sociology 01.**
(3) An examination of the social changes that underlie the emergence of modern politics. An outline and empirical critique of the principal alternative models of political functioning in industrial societies. Empirical analysis of elite and mass political behaviour.

**SOCI 327 Jews in North America.**
(3) Understanding of contemporary North American Jewry using findings of sociology and other social sciences. Social, cultural, and political issues of concern to the Jewish community. Specific characteristics of Jewish life in Canada, and Québec in particular, in comparison to the American Jewish experience.

**SOCI 330 Sociological Theory.**
(3) (Prerequisite: SOCI 210 or permission of instructor) Major sociological theoretical traditions are seen in their historical contexts, as the background to current theoretical issues. Emphasis on Smith, Toqueville, Marx, Durkheim, Weber and Parsons.

**SOCI 333 Social Stratification.**
(3) The pattern, causes and consequences of social inequality. Among the inequalities considered are those of economic class, sex (gender), race, ethnicity and age. Competing theories of the causes of social inequalities are compared and assessed.

**SOCI 338 Introduction to Biomedical Knowledge.**
(3) The dynamics of biomedical disciplines and specialties. Social, scientific, political and commercial aspects of biomedical research. The organization of work in clinical and fundamental research and its consequences on the choice of research topics.

**SOCI 341 Current Problems in Sociology 02.**
(3) (Prerequisite: permission of instructor.) (Restriction: Open to U2 and U3 students only) Intended for students who are adequately prepared to undertake advanced work and have an explicit proposal to submit.

**SOCI 342 Independent Study 1.**
(3) (Prerequisite: permission of instructor.) (Restriction: Open to U2 and U3 students only) Intended for students who are adequately prepared to undertake advanced work and have an explicit proposal to submit.

**SOCI 343 Independent Study 2.**
(3) (Prerequisite: permission of instructor.) (Restriction: Open to U2 and U3 students only) Intended for students who are adequately prepared to undertake advanced work and have an explicit proposal to submit.

*Denotes check at [www.mcgill.ca/study/](http://www.mcgill.ca/study/) for the most up-to-date information on whether a course is offered.*

* Denotes courses taught only in alternate years.
† Denotes courses not available as Education electives.
‡ Denotes courses offred only to Bachelor of Education students.
✿ Denotes courses taught only in alternate years.

[2011-2012 Undergraduate Programs, McGill University](http://www.mcgill.ca/) C-99
SOCI 345 Topics in Sociology.
(3) (Prerequisite: SOCI 210) Topic for Fall 2011: Sociology of Aging and the Life Course.

SOCI 350 Statistics in Social Research.
(3) (Prerequisite: SOCI 211) (Restriction: Not open to students who have taken PSYC 204, PSYC 305 or ECON 227) You may not be able to receive credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) This is an introductory course in descriptive and inferential statistics. The course is designed to help students develop a critical attitude toward statistical argument. It serves as a background for further statistics courses, helping to provide the intuition which can sometimes be lost amid the formulas.

• SOCI 354 Dynamics of Industrial Societies.
(3) (Prerequisite: SOCI 210 or any other introductory course in the social sciences) Theories of social, economic, and political change in the industrialized societies. Causes of cycles in economic growth; imperialism and war; and in ethnic, religious, and industrial conflict. Causes of long run trends in social inequality, crime, family stability, and the position of women. Comparison of North America, Europe, Russia, and Japan.

SOCI 365 Health and Development.
(3) (Prerequisite: SOCI 234 or SOCI 254) Main concepts and controversies linking health to broader social and economic conditions in low income countries. Topics include the demographic and epidemiological transitions, the health and wealth conundrum, the social determinants of health, health as an economic development strategy, and the impact of the AIDS pandemic.

SOCI 370 Sociology: Gender and Development.
(3) (Prerequisite: SOCI 210) Exploration of the main development theories and discussion of how gender is placed within them, analysis of the practical application of development projects and discussion of how they affect gender dynamics, and examination of power relations between development agencies and developing countries. Examples from Sub-Saharan Africa and Latin America are used.

SOCI 377 Deviance.
(3) Introduction to the sociological study of deviance. Emphasis on the "societal reaction" or "interactionist" approach to deviance. The correctional and causal approach towards deviance, its limitations and alternative ways to address the subject of deviance.

SOCI 386 Contemporary Social Movements.
(3) This course will focus on contemporary social movements in Canada, the U.S., and Western Europe, such as the civil rights movement, the women's movement, and the environmental movement. Empirical studies of movements will be used to explore such general issues as how social movements emerge, grow, and decline.

SOCI 388 Crime.
(3) Introductory course on methods and theories in criminology. Exploration of the nature and distribution of crime; and critical evaluation of definitions and the measurement of crime; review of theoretical approaches used to understand such a phenomenon; a comparative overview of the criminal justice system.

SOCI 390 Gender and Health.
(3) Key conceptual and substantive issues in gender and health since c1950: stratified medicalization of women's and men's health; social movements in health including the women's health movement; gender inequality in morbidity and mortality; gender, power and control in patient/physician interactions; embodied experience; politics and policies of gender and health.

SOCI 420 Organizations.
(3) (Prerequisites: SOCI 210 or SOCI 235) A survey of theories of organization with particular reference to problems of growth, technology, centralization and decentralization, and organizational environments.

• SOCI 422 Health Care Providers.
(3) Current trends and issues in health and illness. The role of occupations and organizations which define health and illness and organize and provide health care. Topics include: the impact of interprofessional relationships; legitimation of approaches to health and illness; knowledge and belief systems, and the role of power; challenges to traditional providers, and the impact of the consumers' and women's movements.

SOCI 424 Networks and Social Structures.
(3) The study of relations and networks. Concepts and techniques of network analysis. Issues include: interlocking directorates, social relationships among individuals in heterogeneous communities and organizations, and relations among elites. Students will be required to design an inquiry into one of these substantive domains.

• SOCI 425 Sociology of the Body.
(3) (Prerequisite: SOCI 225 or Permission of Instructor.) Sociological examination of the human body as a cultural phenomenon that intersects with identity, health, illness, disability and medicine. Exploration of meanings attributed to human bodies as well as the body as a site of social interaction.

• SOCI 435 Popular Culture.
(3) A seminar exploring the nature of popular culture, tracing historical beginnings and contemporary changes in film, TV, comics, magazines, and rock music content. Emphasis on developing theoretical trajectories and methodologies for analysing genres and themes, and for making distinctions between so-called folk and popular art.

SOCI 440 Current Problems.
(3) (Prerequisite: permission of instructor.) (Restriction: Open to U2 and U3 students only) Intended for students who are adequately prepared to undertake advanced work and have an explicit proposal to submit.

SOCI 441 Current Problems in Sociology 03.
(3) (Prerequisite: permission of instructor.) (Restriction: Open to U2 and U3 students only) Intended for students who are adequately prepared to undertake advanced work and have an explicit proposal to submit.

SOCI 442 Independent Reading and Research 01.
(3) (Prerequisite: permission of instructor.) (Restriction: Open to U2 and U3 students only) Intended for students who are adequately prepared to undertake advanced work and have an explicit proposal to submit.

SOCI 443 Independent Reading and Research 02.
(3) (Prerequisite: permission of instructor.) (Restriction: Open to U2 and U3 students only) Intended for students who are adequately prepared to undertake advanced work and have an explicit proposal to submit.

SOCI 446 Colonialism and Society.
(3) (Prerequisite: SOCI 210 or permission from instructor.) Forms that colonialism took, its impact on colonial societies, and its modern legacies, focusing on overseas colonialism between 1600 and the 1970s.

• SOCI 455 Post-Socialist Societies.
(3) (Prerequisite: SOCI 210) The demise of Communist Party rule between 1989 - 1991 throughout Eastern Europe and the Soviet Union. The societal implications (e.g. class formation, gender relations, nationalism, corruption, religious freedom) of these dramatic economic and political changes.

• SOCI 460 Responses to Social Problems.
(3) (Prerequisite: permission of instructor.) This seminar focuses on attempts to resolve social problems. There will be discussion and debate concerning policies suggested and critical examination of their potential successes and failures. The course presupposes knowledge of social problems issues obtained in 166-250. Topics include: crime and prisons; discrimination and inequality; poverty; and drug use.

SOCI 461 Quantitative Data Analysis.
(3) (Prerequisite: SOCI 350) Older students who have taken PSYC 385, PSYC 481, ECON 240, or another statistics course. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) This course blends theory and applications in regression analysis. It focuses on fitting a straight line regression using
matrix algebra, extending models for multivariate analysis and discusses problems in the use of regression analysis, providing criteria for model building and selection, and using statistical software to apply statistics efficiently.

SOCI 470 Topics in Economic Sociology.
(3)
● SOCI 475 Canadian Ethnic Studies Seminar.
(3) (Restrictions: Open to students following the Minor Concentration in Canadian Ethnic Studies; or to students with at least nine credits, three at the 300 level, in the social sciences; or with permission of instructor. Not open to students who took CANS 404 in 2007-08.) An interdisciplinary seminar focusing on current social sciences research and public policies in areas relating to Canadian ethnic studies. Topics will include ethnic and racial inequalities, prejudice and discrimination, ethnic identities and cultural expressions, the structure and organization of minority groups.

SOCI 477 Qualitative Methods in Sociology.
(3) (Prerequisite: SOCI 211) Introduction to qualitative research methods. Students will be exposed to various types of data collection (e.g., textual, observational) and data analysis techniques (e.g., in vivo coding) for qualitative data in an experiential, hands-on fashion.

SOCI 480 Honours Project.
(3) (Restriction: For Sociology U3 Honours and Joint Honours students only) The Honours Project, normally in the form of a paper, provides every Honours student with the opportunity to work independently on a topic of special interest. The student works out the topic for the Honours Project through discussions with appropriate potential supervisors (aided by the Honours Adviser when necessary).

● SOCI 484 Emerging Democratic States.
(3) (Prerequisite: SOCI 210) Focus on the sociological aspects of recent transitions to democracy within developing countries - particularly within Sub-Saharan Africa and Latin America. Exploration of why democratization has taken place, to what extent it has been successful and the implications of democratization.

SOCI 488 Punishment and Prisons.
(3) (Prerequisite: SOCI 210) An overview of research on prison "communities" and prison riots. An assessment of incapacitation, deterrence and labelling effects of incarceration. A conceptual framework for analyzing variations (across societies) and changes (over time) in the overall aggregate rates of punishment that social systems impose on their offender populations.

● SOCI 489 Gender, Deviance and Social Control.
(3) (Course for Women's Studies Concentrations) (Prerequisite: Permission of instructor) (Restriction: open to U3 students concentrating on social problems.) This seminar examines how the definition of deviance, reactions to deviance and explanations of deviance are gendered. Specific topics vary from year to year.

SOCI 495 Social Problems and Conflicts.
(3) (Prerequisite: permission of instructor) This course explores the social construction of "social problems". It focuses on the social conflicts involved in the definition of social issues and on how and why "problems" change over time. Issues such as drinking, smoking, drug use, pornography, abortion, and homosexuality will be discussed.

SOCI 499 Internship: Sociology.
(3) (Restriction: Open to U2 and U3 students with a minimum CGPA of 2.7, and permission of the departmental Internship Advisor. This course will normally not fulfill program requirements for seminar or 400-level courses. A letter from a supervisor at the institution must attest to successful completion of the student's tenure.) Internship with an approved host institution or organization.

SOCI 504 Quantitative Methods 1.
(3) (Prerequisites: SOCI 350 and SOCI 461 or equivalents) Analysis of quantitative information, especially in large, survey-type, data sets. Use of computer programs such as SPSS and SAS. Topics include: cross tabulations with an emphasis on multi-dimensional tables, multiple correlation and regression, and, the relationship between individual and aggregate level statistical analyses. Special reference to demographic techniques.

SOCI 505 Quantitative Methods 2.
(3) (Prerequisite: SOCI 504) Topics include: problems - and solutions - in regression analysis, models for categorical dependent variables, including logic, log-linear, and linear probability models, measurement models, structural equation models with latent variables (LISREL), and time series and panel analysis.

● SOCI 506 Quantitative Methods 3.
(3) (Prerequisite: SOCI 504 or equivalent or permission of instructor.) Advanced statistical analyses focusing on advanced methods such as event history analysis and analysis of contingency tables.

● SOCI 507 Social Change.
(3) (Restrictions: Not open to students who have taken SOCI 672. Undergraduates by permission of instructor only.) An examination of the major sociological theories of long term macro social change. Topics include why industrialization began in Europe instead of Asia, the divergence among societies in systems of class, gender, ethnic and racial inequality, and whether industrial society has entered a new post-industrial or post-modern phase.

SOCI 508 Medical Sociology and Social Psychiatry.
(3) (Prerequisite: SOCI 309 or SOCI 310 or Permission of the Instructor.) (Note: Open to Social Studies of Medicine students.) The social construction of mental illness and disease, the personal and professional definition and recognition of illness, the distribution and determinants of illness, disease, sickness in the population, and the politics of medical research.

SOCI 510 Seminar in Social Stratification.
(3) (Prerequisites: SOCI 333 and SOCI 350 or equivalents) Recent theoretical and empirical developments in social stratification and inequality. The study of social class, with attention to the anomalous findings on heterogeneity in labour markets and the labour process, status attainment processes, and the socio-political and industrial attitudes of the working class. Students will prepare quantitative analysis of Canadian survey material as well as critical qualitative reviews.

SOCI 511 Movements/Collective Action.
(3) A critical examination of classical and more recent approaches to the study of social movements and collective action. Discussion of: the role of grievances and interests, incentives and beliefs, conditions of breakdown and solidarity, mobilization and social control, the dynamics of collective action.
• SOCI 512 Ethnicity & Public Policy.  
  (3) (Prerequisite: SOCI 230 or permission from the instructor.) (Restriction: Not open to students who have taken SOCI 629.) Major themes in the theoretical literature on ethnicity. Public policies with direct and indirect implications for inter-ethnic relations will be studied. Policies affecting areas such as language, education, immigration, employment and promotion, multiculturalism and welfare. Examples drawn from several multi-ethnic societies. Political, constitutional, and economic problems associated with these policy initiatives.

• SOCI 513 Social Aspects HIV/AIDS in Africa.  
  (3) (Prerequisites: SOCI 225 or SOCI 309 or Permission of Instructor.) Examination of the social causes and consequences of HIV/AIDS in Africa. Gender inequality, sexual behaviours, marriage systems, migration, and poverty are shaping the pandemic as well as how the pandemic is altering social, demographic and economic conditions across Africa.

SOCI 514 Criminology.  
(3) (Prerequisite: Permission of Instructor.) (Note: Grad students and U3 students only.) A survey of the major schools of thought that have developed to explain criminal behaviour from the emergence of modern criminology in the 18th and 19th centuries to current debates.

• SOCI 515 Medicine and Society.  
  (3) (Prerequisite: Undergraduate students require permission of instructor) The sociology of health and illness. Reading in areas of interest, such as: the sociology of illness, health services occupations, organizational settings of health care, the politics of change in national health service systems, and contemporary ethical issues in medical care and research.

• SOCI 516 Sociological Theory & Research.  
  (3) (Prerequisites: SOCI 330 or Permission of Instructor.) (Note: Topics will vary from year to year.) Selected topics of current faculty interest in sociological theory and research.

• SOCI 519 Gender and Globalization.  
  (3) (Prerequisite: SOCI 270 or permission of instructor.) Focus on the diverse forces of globalization that impact the lives of men and women. Critical analysis of key theories and concepts implicated in the intersection of globalization processes with gender dynamics.

SOCI 520 Migration and Immigrant Groups.  
(3) (Prerequisite: 15 credits in the Social Sciences) Review of the major demographic, economic and sociological theories of internal and international migration. The main emphasis will be on empirical research on migration and immigrant groups.

SOCI 525 Health Care Systems in Comparative Perspective.  
(3) (Prerequisite: Permission of instructor.) (Restriction: Not open to students who are taking or have taken EPUB 525.) (Note: This course is cross-listed in Epidemiology, Biostatistics and Occupational Health and in Sociology.) Comparative perspective to illustrate processes involved in the development and evolution of health care systems around the world. Countries examined will represent different welfare state regimes, health care system typologies, levels of development and wealth.

• SOCI 529 Political Sociology 1.  
  (3) (Prerequisite: SOCI 330) Key theories and empirical areas of political sociology. Major works relevant to each theme will be read and analyzed. Topics include: political socialization, the social psychology of political behaviour, class and politics, political organizations, elite studies. A research paper in one of the areas covered will be required.

SOCI 530 Sex and Gender.  
(3) (Restriction: Open to Honours Sociology students and to Sociology Majors with the permission of the instructor) This seminar critically reviews theoretical perspectives and research on sex and gender in various domains of social life. It gives special emphasis to work which considers the meaning of gender and how it differs across time and place.

SOCI 535 Sociology of the Family.  
(3) (Undergraduate students require permission of instructor) This seminar reviews literature on major research areas in family. The course examines families in the past, the study of family using a life course approach, and considers selective areas which may have had significant influences on contemporary family such as work and family, family violence, and cultural variation in families.

• SOCI 538 Selected Topics in Sociology of Biomedical Knowledge.  
  (3) The seminar will examine recent work in the sociology of biomedical knowledge. It will focus on the technological shaping of biomedical knowledge, i.e., on the impact of new technologies and equipment on the development of biomedical knowledge.

SOCI 540 Qualitative Research Methods.  
(3) (Restrictions: open to Sociology Honours students, and Sociology Major Concentration students with the instructor’s permission) Qualitative methods, mainly participant observation, structured and unstructured interviewing. Students begin a research project using these techniques and submit field notes once a week.

• SOCI 545 Sociology of Population.  
  (3) (Prerequisite: SOCI 234 or equivalent) The classic literature of sociology of population. Drawing reciprocal linkages between social and population processes: Historical, family and labour force demography, demographic and fertility transitions, mortality, ethnic and race relations, gender, macro-structural interaction theory, and the relation of population and the environment.

SOCI 550 Developing Societies.  
(3) Comparison of alternative explanations of underdevelopment: the impact of social stratification, relations of domination and subordination between countries, state interference with the market. Alternative strategies of change: revolution, structural adjustment, community development and cooperatives. Students will write and present a research paper, and participate extensively in class discussion.

• SOCI 555 Comparative Historical Sociology.  
  (3) (Restriction: Undergraduate students require permission of instructor) The analysis of patterns of state and nation-building in historical and comparative perspectives with particular attention being given to methodology.

SOCI 560 Labour and Globalization.  
(3) (Prerequisite: SOCI 307 or Permission of Instructor) The relationship between labour and globalization, focusing on globalization of production, working conditions, national labour responses, and the emergence of transnational campaigns for labour rights and new forms of private regulation.

• SOCI 565 Social Change in Panama.  
  (3) (Prerequisites: SOCI 210 and SOCI 350 or equivalents.) (Restriction: Students must register for a full term in the Panama Field Studies Semester.) (Note: Four field trips.) Analysis of social change in Panama, particularly during the 20th century: demography, social and economic structures, rural and urban activities and landscapes, indigenous peoples, the effects of the Canal and the Free Trade Zone. Focus throughout on the interaction of human society and the environment.

• SOCI 571 Deviance and Social Control.  
  (3) This seminar focuses on how social groups enforce rules (and maintain social order) through coercion and socialization. It reviews current research and critiques key theoretical approaches to social control. Included are discussions of regulating institutions such as prisons and mental asylums, and the roles of gossip, manners and etiquettes.

SOCI 580 Social Research Design and Practice.  
(3) (Restriction: Open to U3 and graduate students) Asking reasonable sociological questions and evaluation of different research designs used to answer such questions. Development of cogent research proposals, including data collection procedures. Principles, dynamics, strengths and practical limitations of research designs. Examples from recent publications.

• SOCI 588 Sociology of Knowledge.  
  (3) (Restriction: Not open to students who have taken SOCI 661.) A review of the current research in the sociology of knowledge. The focus will be on sociological studies of the formation, circulation and reception of scientific and artistic ideas, beliefs and practices, and the configuration and social organization of the collectives involved in these processes.
SWRK-Social Work
Offered by: Social Work

• SWRK 199 FYS: Social Work Profession.
  (3) (Fall) (Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) (Maximum 25) The course will explore the profession and practice of social work including its history; ethical foundations and place in society. It will also address the various fields in which social workers practice - e.g., health; child welfare; women's issues.

SWRK 220 History & Philosophy of Social Work.
 (3) (Restrictions: limited to BSW U1 and 2-year BSW students. Not open to students who have taken SWRK 240.) Historical, theoretical and philosophical base of social work which includes the role of social work in the social welfare, modalities of practice, professional codes of ethics, and human rights legislation.

SWRK 221 Public Social Services in Canada.
 (3) (Restrictions: Limited to BSW U1 and 2-year BSW students. Not open to students who have taken SWRK 352.) Federal and provincial social welfare programs - the intended objectives, program design, issues of eligibility and funding, and comparison with programs in other parts of Europe and North America. Particular emphasis on concepts of social justice and poverty. Programs such as income security, labour market, health, immigration, and social services.

SWRK 222 Introduction to Practicum.
 (3) (Restrictions: Limited to BSW U1 students. Not open to students who have taken SWRK 255.) Basic social work skills.

SWRK 223 Poverty and Inequality.
 (3) (Restrictions: Limited to BSW U1 students. Not open to students who have taken SWRK 357.) Examination and analysis of laws and policies affecting those living in poverty, experiencing inequality, strategies for mitigating these issues, role of social work in advocating for legal and welfare rights of clients and communities.

SWRK 224 Human Development Across the Lifespan.
 (3) (Restriction: Limited to BSW U1 students) Physical, cognitive, emotional, behavioural and social development in different stages of the life course with a focus on childhood and adolescence. Human development in different social contexts. Theory and research as it relates to social work practice.

SWRK 320 Practice with Individuals and Families 1.
 (3) (Restrictions: Limited to BSW U1 and 2-year BSW students. Not open to students who have taken SWRK 320 D1/D2 and SWRK 341) Introduction to theories and techniques informing clinical social work practice with individuals and family systems in a social context. Sexual orientation, race, class, gender, culture, ability and diverse family forms are integrated. Knowledge and skills required for assessment and treatment across a range of practice settings.

SWRK 321 Introduction to Practice with Groups.
 (3) (Restrictions: Limited to BSW U1 and 2-year BSW students. Not open to students who have taken SWRK 321 D1/D2 and SWRK 376) Introduction to theories and techniques informing social work practice with groups. Emphasis on understanding group formation, assessment, and models of group intervention across a range of practice settings and with different populations.

SWRK 322 Field Practice 1.
 (3) (Restrictions: Limited to BSW students. Not open to students who have taken SWRK 355.) Supervised educational experiences in social work practice designed to integrate practice and theory.

SWRK 323 Field Practice 2.
 (3) (Prerequisite: SWRK 322) (Restrictions: Limited to BSW students. Not open to students who have taken SWRK 356.) Supervised educational experiences in social work practice designed to integrate practice with theoretical knowledge.

SWRK 325 Anti-Oppression Social Work Practice.
 (3) (Prerequisite: SWRK 222.) (Restrictions: Limited to BSW U1 and 2-year BSW students. Not open to students who have taken SWRK 344) Social work policy and practice, including an examination of discrimination and oppressions, identity and social location, reflexivity, intersectionality, contemporary anti-oppression movements, access and equity in human services and their implications.

SWRK 326 Practice with Individuals and Families 2.
 (3) (Prerequisite: SWRK 320) (Restrictions: Limited to BSW U1 and 2-year BSW students. Not open to students who have taken SWRK 320 D1/D2 and SWRK 341) Advanced integration of theories and techniques informing clinical social work practice with individual and family systems in a social context. Sexual orientation, race, class, gender, culture, ability and diverse family forms are integrated. Knowledge and skills required for assessment and treatment across a range of practice settings.

SWRK 327 Approaches to Community Practice.
 (3) (Prerequisite: SWRK 321) (Restrictions: Limited to BSW U1 and 2-year BSW students. Not open to students who have taken SWRK 321 D1/D2, SWRK 374 and SWRK 467.) A comparison of models of community practice in a variety of social settings. An analysis of practice assumptions and methods. Intervention strategies and methods from student practice will be discussed.

SWRK 341 Introduction: Practice with Families.
 (3) (Winter) An introduction to theories and techniques of family assessment and intervention using genograms, family systems and eco-systemic approaches and family life cycle theory. The effects of class, gender, race, culture; also diverse family forms (nuclear, extended, divorcing, reconstituted, substitute, lone parent, gay/lesbian) are considered. Illustrations using simulations and tapes.

SWRK 342 Practice with Gay, Lesbian, Bisexual & Two-Spirit People.
 (3) (Restrictions: Limited to Social Work BSWU2, BSWU3, 2-year BSW students and U2, U3 Minor in Sexual Diversity Studies students.) Issues facing gay, lesbian, bisexual and two-spirit people. Addresses how social workers can support the development of health and social services informed by principles of social justice and equity. Topics include self-esteem, youth at risk, families, and aging.

SWRK 345 First Peoples’ Issues and Social Work.
 (3) (Prerequisite: SWRK 220) An analysis of Canadian policies and legislation, their impact on First Peoples and on social work practice. Historical overview of European-Canadian and First Nations, Métis and Inuit relations.

● SWRK 350 Social Work Skills Laboratory.
 (3) (Summer) (Restriction: Limited to Special B.S.W. Students) A Compulsory Skills laboratory for all Special B.S.W. students which focuses on developing basic interviewing skills. Student participation is required.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses taught only in alternate years.
✱ Professional Practice (Stage) in Dietetics involving special prerequisites.
■ Indicates that departmental approval/permission must be obtained by a student prior to registration.
† Denotes courses not available as Education electives.
□ Denotes courses with limited enrolment.
● Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
จำ Denotes courses offered by the Faculty of Education which, if appropriate to the student’s program, may be included in the academic concentration.
▲ Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
SWRK 351 Children's Needs and Social Services.  
(3)  
SWRK 353 Introduction to Practice.  
(6) (Summer) (Corequisite: SWRK 350) (Restriction: Limited to Special BSW students only) Introduction to the principles and practice of social work. Examination of social legislation, social policy, and social services.  
SWRK 354 Social Work in the Health Field.  
(3) (Restrictions: Limited to BSW U2, BSW U3, and 2-year BSW students.) An introduction to health and health institutions in the context of service delivery. Major themes will include: multidisciplinary teamwork in the hospital; crisis intervention; legal ethical issues; and emerging issues for social workers in health.  
SWRK 374 Community Development/Social Action.  
(3) (Fall) (Restriction: Not open to U1 level students.) The organizing process and development of direct organizing skills. Emphasis on organizational entities, community power and conflict, organizing strategies and their application, urban community development.  
SWRK 376 Social Work Practice with Groups.  
(3) (Winter) (Restriction: Limited to B.S.W. students) Theory and practice of work with groups. Emphasis on understanding group concepts and group dynamics and learning about various theoretical models of social group work practice. Focus on group development theory and the skills of the worker in a small group context. Small group participation, role playing and simulations will be utilized.  
SWRK 377 Women's Issues in Practice.  
(3) (Fall) (Prerequisite: U1 required Social Work course) (Restriction: Limited to B.S.W. students only) Theory and practice of social work with women. Emphasis on recent advances in understanding women's relationships to the structures and institutions of society. Issues which arise in the provision of social services: women and the family, mental and physical health, poverty and the welfare system, feminist counselling.  
SWRK 400 Policy and Practice for Refugees.  
(3) (Restrictions: Limited to BSW U3, 2-year BSW, and U3 non-Social Work students) Refugee-generating conflicts, international and national responses are considered. Canadian policy, history and response to refugees are analyzed. Theory-grounded practice with refugees is examined, including community organizing and direct service delivery to individuals and families.  
SWRK 402 Developmental Disabilities.  
(3) (Winter) (Restriction: Limited to U2 and U3 level students) This course provides an in-depth analysis of social work's response to persons with a developmental disability. Students will review both the practice and the policy considerations that pertain to the field of developmental disabilities with a special emphasis on the effects of deinstitutionalization and the community response.  
SWRK 403 Assessment - Clinical and Community.  
(3) (Winter) (Prerequisite: SWRK 240) (Restriction: Limited to BSW U2, BSW U3 and 2-year BSW students only) Social work assessment is the crucial professional activity on which all interventions, clinical and community, are based. This course will address relevant factors involved in the situations faced by social work practitioners and their clients as they attempt to collaboratively solve problems.  
SWRK 420 Advanced Field Practice 1.  
(3) (Prerequisite: SWRK 323) (Restrictions: Limited to BSW U3 and 2-year BSW students) Supervised educational experience in social work practice at an advanced level.  
SWRK 421 Advanced Field Practice 2.  
(3) (Restriction: Limited to BSW U3 and 2-year BSW students completing their last practicum) Supervised educational experience in social work practice at an advanced level.  
SWRK 422 Integrative Seminar.  
(3) (Prerequisite: SWRK 322) (Restriction: Not open to students who have taken SWRK 422D1/D2) Analyzing field experiences operationalizing the link between scholarship and practice. Dimensions of equity will be integrated.  
SWRK 423 Social Work Research.  
(3) (Prerequisite: SWRK 326) (Restrictions: Limited to BSW students. Not open to students who have taken SWRK 401.) Appraising and analyzing social work practice research, including the perspectives of the authors, the literature reviewed, the practice questions, the research methodology and analysis and the implications of the findings for practice.  
SWRK 424 Mental Health and Illness.  
(3) (Prerequisite: SWRK 326 is a prerequisite for the students in the 90-credit BSW program.) (Corequisites: SWRK 320 or SWRK 326 is a co-requisite for the students in the 2-year BSW program) (Restrictions: Limited to BSW U3 and 2-year BSW students. Not open to students who have taken SWRK 482) Symptoms of mental illness and approaches to the delivery of services and programs within various sites of care. Impact of stigma and the place of psychosocial rehabilitation. Biopsychosocial framework and effective practice models examined with an emphasis on policy and its implications for the delivery of services and programs.  
SWRK 428 Social Policy and Administration.  
(3) (Prerequisites: SWRK 327) (Restrictions: Limited to BSW U3 and 2-year BSW students. Not open to students who have taken SWRK 458) An analysis of the administrative structures and dynamics of social service organizations, with special attention to Quebec policies and to the role of social workers. Examples are drawn from current field experiences of students.  
SWRK 434 Practice with Involuntary Clients.  
(3) (Winter) (Restriction: Limited to B.S.W. U3 and 2-year B.S.W. students) Issues and practice problems encountered with involuntary clients in settings such as courts, youth protection agencies and total institutions. Topics include: reaction of the client and worker to the "involuntary" situation, the ethics and efficacy of "coerced treatment" and practice interventions with involuntary clients. Students draw on their own experience with these issues.  
SWRK 438 Drug Addiction and Society.  
(3) (Winter) (Prerequisite: SWRK 326) (Restrictions: Limited to B.S.W. U3 and 2-year B.S.W. Students) This course examines primarily the abuse in our society of illegal drugs e.g. heroin, cocaine and marijuana, and the abuse of prescription drugs, e.g. tranquilizers and narcotics. Topics include: assessment and treatment; I.V. drug use and the spread of the HIV virus; Canada's policy on illegal drugs.  
SWRK 459 Adult/Child Sexual Relations.  
(3) (Restriction: Limited to B.S.W. U3 and Special B.S.W. students) An examination of intra-extra-familial child sexual abuse with a focus on the individual and family psychodynamics, the legal systems that respond to the problem and on assessment and treatment skills.  
SWRK 463 Practice with the Elderly.  
(3) (Restrictions: Limited to BSW U3, 2-year BSW and U3 non-Social Work students) An introduction to social services to the aged. The involvement of the social worker with respect to: institutionalizing the elderly, community care, economics and aging, widowhood, separation and loss, the family situation of the elderly, and the strengths of older people.  
SWRK 465 School Social Services.  
(3) (Winter) (Restriction: Limited to B.S.W. students) Introduction to models of school social work practice. Diagnostic and practice approaches places emphasis on the relationships between the school, family, community and the pupil. Problems which affect the school social worker include: youth protection, children with special needs, drop-outs, conduct-disordered behaviour, integration of immigrants and violence.
SWRK 471 Tutorial in Social Work Research. (3) (Prerequisite: SWRK 401 or equivalent) (Restriction: Limited to BSW U3 and 2-year BSW students) Opportunity for interested students to conduct a small-scale practical research project, either individually or in a small group, with tutorial assistance from staff members.

SWRK 472 Family Assessment. (3) (Fall) (Restriction: Limited to B.S.W. U3 and 2-year B.S.W. students) An opportunity to participate in a seminar focusing on an integrative model of work with families. Concurrent field practice with families required.

SWRK 473 Individuals and Families in Crisis. (3) (Restriction: Limited to B.S.W. U3 and Special B.S.W. students) Theory and practice of work with individuals and families under stress. Topics include: categories of hazardous events; affective, behavioural and role disorganization; phases in the crisis cycle; techniques of crisis intervention and abatement.

SWRK 481 Goal Directed Time Limited Practice. (3) (Fall) (Restriction: Limited to B.S.W. U3 and Special B.S.W. students) Principles of goal directed time limited casework with individuals, couples and families. Relevant theory will be examined and applied to practice drawing upon examples from the students' field experiences. Emphasis on goal setting, contracting, use of tasks, evaluation of practice.

SWRK 485 Tutorial: Social Work Practice. (3) (Restrictions: Limited to BSW U3 and 2-year BSW students) An individual or small group tutorial in which students will work independently in conjunction with the instructor. The student will undertake a project related to the area of specialization.

SWRK 486 Tutorial in Social Policy. (3) (Restrictions: Limited to BSW U3 students. Not open to students who have taken SWRK401.) An individual or small group tutorial in which students will work independently in conjunction with the instructor. The student will undertake a project related to the area of specialization.

SWRK 492 Violence against Women and Children. (3) (Winter) (Restriction: Limited to BSW U3, 2-year BSW, and Women's Studies Major/Minor Concentration students) Through a feminist theoretical lens, this course examines a range of male-perpetrated sexual and physical abuses of women and children. Such an examination includes critical appraisals of "common knowledge", research findings, dominant modes of intervention, and social welfare policies and legislation.

SWRK 493 Seminar on Child Protection. (3) (Restriction: Limited to BSW U3 and 2-year BSW students) The field of child protection and the problems of physical and sexual abuse and neglect of children. The general characteristics of this vulnerable population group and their families as well as some models of intervention.

SWRK 497 Clinical Practice Seminar 1. (3) (Restriction: Limited to BSW U3 and 2-year BSW students) Practice competence with various population groups: physically and mentally handicapped, terminally-ill, multi-problem families. Topics may change from year to year.

SWRK 498 Clinical Practice Seminar 2. (3) (Fall) (Restrictions: Limited to BSW U2, BSW U3, and 2-year BSW students.) Practice competence with various population groups. Topics may change from year to year.

SWRK 525 Critical Thought and Ethics in Social Work. (3) (Prerequisite: SWRK 325.) (Restrictions: Limited to B.S.W. U3, 2-year B.S.W. and M.S.W. students) Use of theory and reflexivity to challenge the various ways knowing and practicing within social work. Critically engage and assess the theoretical basis of social work theories and knowledge acquired over the course of the program. Application of this knowledge to ethical dilemmas that arise in practice.

SWRK 531 Social Perspectives on Aging. (3) (Summer) (Restriction: School of Social Work; Limited to U3 and M.S.W. students) Instructors and students from various disciplines will focus on certain aspects of aging related to issues of independence in later life. The provision of services and their impact on the recipients will be evaluated. Senior citizens will participate in the course as Senior Consultants.

SWRK 532 International Social Work. (3) (Restriction: Limited to B.S.W. U3, 2-year B.S.W. and M.S.W. students.) Discussion based upon intensive study and reports on problems in selected countries. Emphasis on identifying major social problems, understanding the social forces bearing on those problems and considering appropriate professional approaches to aid in their solution.

SWRK 593 Chronic and Terminal Illness. (3) (Winter) (Restriction: Limited to B.S.W. U3, 2-year B.S.W. and M.S.W. students) A seminar to examine practice with persons living with chronic and terminal illnesses. Needs of families, caretakers, health care workers and the gay community are studied.

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<thead>
<tr>
<th>WMST-Women’s Studies</th>
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<tr>
<td>Offered by: Inst for Gender, Sex &amp; Fem St</td>
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<tr>
<td>WMST 200 Introduction to Women's Studies. (3) An introduction to the interdisciplinary field of Women's Studies from historical and contemporary perspectives, this course will explore key concepts, issues and modes of analysis based on the intersection of gender with factors such as race, ethnicity, class, religion, and sexuality.</td>
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<tr>
<td>WMST 301 Women's Studies Current Topics 1. (3) (Prerequisite: WMST 200 or permission of instructor) Topic for Fall 2011: Queer Cultures: Gender systems and sexual meanings in a modern global world. Topic for Winter 2012 TBA. Consideration of contemporary issues in Women's Studies. Topic and approach will vary from year to year.</td>
</tr>
<tr>
<td>WMST 302 Women's Studies Current Topics 2. (3) (Prerequisite: WMST 200 or permission of instructor) Topic for Fall 2011 TBA. Topic for Winter 2012 TBA. Consideration of contemporary issues in Women's Studies. Topic and approach will vary from year to year.</td>
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<tr>
<td>WMST 303 Feminist Theory and Research. (3) (Prerequisite: WMST 200) (Restriction: Open to Women's Studies students only) This course explores contemporary feminist theories and critiques of approaches to knowledge developed in the humanities, social, natural, and applied sciences. Feminist contributions to research and critical practices will be examined in relation to course projects.</td>
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<tr>
<td>WMST 401 Women's Studies Special Topics 1. (3) (Prerequisite: WMST 200 or permission of instructor) Topic for Fall 2011: Women and the State in India: Colonial and Postcolonial Perspectives. Topic for Winter 2012 TBA. Advanced seminar in selected themes and issues in Women's Studies. Topics and theoretical or disciplinary approach will vary from year to year.</td>
</tr>
<tr>
<td>WMST 402 Women's Studies Special Topics 2. (3) (Prerequisite: WMST 200 or permission of instructor) Topic for Fall 2011 TBA. Topic for Winter 2012: Transgender Histories, Identities and Politics. Advanced seminar in selected themes and issues in Women's Studies. Topics and theoretical or disciplinary approach will vary from year to year.</td>
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- Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
- Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
WMST 461 Tutorial in Women's Studies 1.
(3) (Prerequisite: WMST 303 or permission of instructor)
(Restrictions: Majors, Honours and Joint Honours students in
Women's Studies. Program and advisor approval required.)
Advanced reading course and independent research project under
the supervision of an instructor on aspects of Women's Studies.

WMST 462 Tutorial in Women's Studies 2.
(3) (Prerequisite: WMST 303 and permission of instructor)
(Restriction: Majors, Honours and Joint Honours students in
Women's Studies.) Advanced reading course and independent
research project under the supervision of an instructor on
aspects of Women's Studies.

WMST 494 Internship: Women's Studies.
(3) (Restrictions: Open to U2 and U3 students after completing
30 credits of a 90 credit program or 45 credits of a 96-120
credit program. A minimum CGPA of 2.7, and permission of
the departmental advisor are required. This course will not
normally fulfill program requirements for seminar or 400-level
courses.) Internship with an approved host institution or
organization.

WMST 495D1 (1.5), WMST 495D2 (1.5) Honours/Joint Honours
Colloquium.
(Prerequisite: WMST 303.) (Corequisite: WMST 497D1 and
WMST 497D2 consecutively) (Restriction: Honours/Joint
Honours students in Women's Studies) (Students must register for
both WMST 495D1 and WMST 495D2.) (No credit will be
given for this course unless both WMST 495D1 and WMST
495D2 are successfully completed in consecutive terms.)
Students will research, discuss, and present their thesis
topics.

WMST 497D1 (1.5), WMST 497D2 (1.5) Honours/Joint Honours Thesis.
(Prerequisite: WMST 303) (Corequisite: WMST 495D1 and
WMST 495D2 consecutively) (Students must register for both
WMST 497D1 and WMST 497D2.) (No credit will be given for
this course unless both WMST 497D1 and WMST 497D2 are
successfully completed in consecutive terms) Supervised reading
and preparation of a Joint Honours thesis under the direction of
a member of faculty.

• WMST 501 Advanced Topics 1.
(3) (Prerequisite: WMST 303 or permission of instructor)
Advanced topics in theory and methodology related to Women's
Studies. Topics will vary from year to year.

• WMST 502 Advanced Topics 2.
(3) (Prerequisite: WMST 303 or permission of instructor)
Advanced topics in theory and methodology related to Women's
Studies. Topics will vary from year to year.

• WMST 513 Gender, Race and Science.
(3) This course is a philosophical exploration of the nature of
science concerning sex, gender, race and racial stereotypes, and
the construction of "womanhood". The social history/biography of
women and minorities in science will be studied to develop a
critique of biological determinism and explore the meaning and
possibility of a "feminist science".
Interfaculty, B.A. & Sc.

BASC-Arts & Science
Offered by: Arts & Science Admin (Shared), Science

BASC 201 Arts & Science Integrative Topics.
(3) (Not offered in 2011-2012) (Restriction: Open only to students registered in the B.A. & Sc. Topics that integrate information from Arts & Science (e.g. biomedical ethics; history of science; scientific reasoning; military conflict and geography; philosophy of mind, etc.) to exemplify the benefits of applying scholarship from diverse areas to a problem.

BASC 396 Undergraduate Research Project.
(3) (Prerequisites: At least one term of undergraduate studies, and a CGPA of at least 3.0; or permission of instructor.) (Restrictions: Permission required via the Office of Undergraduate Research in Science (OURS). Student cannot be supervised by same instructor for two 396 courses. S/U option not permitted. Only open to students in BASc programs.) (Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) (For projects that are not integrative, students should consider other research project or independent study courses offered by the Faculties of Arts or Science.) Independent research project with a final written report.

BASC 449D1 (3), BASC 449D2 (3) Integrative Research Project.
(Prerequisite: At least two program courses at the 300-level in each faculty.) (Restriction: Open only to B.A. & Sc. students. Before registration, projects must be arranged individually with professors. Each project will be approved by chair/delegate of the B.A. & Sc. Program Administration Committee.) (Students must register for both BASC 449D1 and BASC 449D2) (No credit will be given for this course unless both BASC 449D1 and BASC 449D2 are successfully completed in consecutive terms) (Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) (For projects that are not integrative, students should consider other research project or independent study courses offered by the Faculties of Arts or Science.) Supervised integrative research project.

BASC 449N1 (3), BASC 449N2 (3) Integrative Research Project.
(Prerequisite: At least two program courses at the 300-level in each faculty.) (Restriction: Open only to B.A. & Sc. students. Before registration, projects must be arranged individually with professors. Each project will be approved by chair/delegate of the B.A. & Sc. Program Administration Committee.) (Students must register for both BASC 449N1 and BASC 449N2) (No credit will be given for this course unless both BASC 449N1 and BASC 449N2 are successfully completed in a twelve month period) (Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) (For projects that are not integrative, students should consider other research project or independent study courses offered by the Faculties of Arts or Science.) Supervised integrative research project.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses taught only in alternate years.
† Professional Practice (Stage) in Dietetics involving special prerequisites.
 Indicates that departmental approval/permission must be obtained by a student prior to registration.
† Denotes courses not available as Education electives.
 □ Denotes courses with limited enrolment.

BASC-Arts & Science

Interfaculty, B.A. & Sc.

BASC-Arts & Science
Offered by: Arts & Science Admin (Shared), Science

BASC 201 Arts & Science Integrative Topics.
(3) (Not offered in 2011-2012) (Restriction: Open only to students registered in the B.A. & Sc. Topics that integrate information from Arts & Science (e.g. biomedical ethics; history of science; scientific reasoning; military conflict and geography; philosophy of mind, etc.) to exemplify the benefits of applying scholarship from diverse areas to a problem.

BASC 396 Undergraduate Research Project.
(3) (Prerequisites: At least one term of undergraduate studies, and a CGPA of at least 3.0; or permission of instructor.) (Restrictions: Permission required via the Office of Undergraduate Research in Science (OURS). Student cannot be supervised by same instructor for two 396 courses. S/U option not permitted. Only open to students in BASc programs.) (Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) (For projects that are not integrative, students should consider other research project or independent study courses offered by the Faculties of Arts or Science.) Independent research project with a final written report.

BASC 449D1 (3), BASC 449D2 (3) Integrative Research Project.
(Prerequisite: At least two program courses at the 300-level in each faculty.) (Restriction: Open only to B.A. & Sc. students. Before registration, projects must be arranged individually with professors. Each project will be approved by chair/delegate of the B.A. & Sc. Program Administration Committee.) (Students must register for both BASC 449D1 and BASC 449D2) (No credit will be given for this course unless both BASC 449D1 and BASC 449D2 are successfully completed in consecutive terms) (Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) (For projects that are not integrative, students should consider other research project or independent study courses offered by the Faculties of Arts or Science.) Supervised integrative research project.

BASC 449N1 (3), BASC 449N2 (3) Integrative Research Project.
(Prerequisite: At least two program courses at the 300-level in each faculty.) (Restriction: Open only to B.A. & Sc. students. Before registration, projects must be arranged individually with professors. Each project will be approved by chair/delegate of the B.A. & Sc. Program Administration Committee.) (Students must register for both BASC 449N1 and BASC 449N2) (No credit will be given for this course unless both BASC 449N1 and BASC 449N2 are successfully completed in a twelve month period) (Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) (For projects that are not integrative, students should consider other research project or independent study courses offered by the Faculties of Arts or Science.) Supervised integrative research project.

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Denotes courses taught only in alternate years.
† Professional Practice (Stage) in Dietetics involving special prerequisites.
 Indicates that departmental approval/permission must be obtained by a student prior to registration.
† Denotes courses not available as Education electives.
 □ Denotes courses with limited enrolment.
COGS 444D1 (3), COGS 444D2 (3) Honours Research.
(Prerequisite: Permission of Director of Cognitive Science Programs.) (Note: To receive approval to register for this course, a student must present a research proposal to the Director of the Cognitive Science Program. The student's proposal must include approval of the research from one advisor from each of the student's two focal departments. The student's focal departments must consist of one Arts department and the one Science department (both must be participating in the BASc option) in which the student will have at the completed least 12 credits, exclusive of required courses at graduation.) (Students must register for both COGS 444D1 and COGS 444D2.) (No credit will be given for this course unless both COGS 444D1 and COGS 444D2 are successfully completed in consecutive terms.) Honours research course including research issues in two areas of cognitive science.

COGS 444N1 (3), COGS 444N2 (3) Honours Research.
(Prerequisite: Permission of Director of Cognitive Science Programs.) (Note: To receive approval to register for this course, a student must present a research proposal to the Director of the Cognitive Science Program. The student's proposal must include approval of the research from one advisor from each of the student's two focal departments. The student's focal departments must consist of one Arts department and the one Science department (both must be participating in the BASc option) in which the student will have at the completed least 12 credits, exclusive of required courses at graduation.) (Students must also register for COGS 444N2.) (No credit will be given for this course unless both COGS 444N1 and COGS 444N2 are successfully completed in a twelve month period.) Honours research course including research issues in two areas of cognitive science.
Faculty of Education

EDEA-Arts Education

Offered by: Integrated Studies in Ed

■ EDEA 201 Basic Musicianship Teaching 1.
(3) Introduction to the elements of music theory through techniques of aural training, sight singing and keyboard. Lab work at the keyboard.

■ EDEA 204 Drawing.
(3) (The course includes a fee of $10 for art supplies such as pastels and to cover the cost of live models. The fee is refundable until the end of the course add/drop period.) Development of sound drafting skills through the study of organic forms and the human figure in various media.

■ EDEA 205 Painting 2.
(3) (Prerequisite: EDEA 204) (The additional course charge of $10 for EDEA 205 and EDEA 304 covers the cost of live models and selected other materials deemed necessary in the instruction of these courses. The fee is refundable until the end of the course add/drop period.) Investigation of color, media, tools, techniques. Studies of natural forms, the human figure.

EDEA 206 1st Year Professional Seminar.
(1) (Corequisite: EDFE 205) This seminar along with First Field Experience (Music) serves as an orientation to the culture of the school and to teaching as a profession. Emphasis is on the general functioning of elementary and secondary schools. Topics include the role of the arts in the curriculum. Professional portfolios and professional competencies will be addressed.

■ EDEA 241 Basic Art Media for Classroom.
(3) (Arts supplies such as plaster, clay, and paints provided in class. As well, the fee of $15 includes a museum entrance charge for a guided tour. The fee is refundable until the end of the course add/drop period.) An introduction to media that can be easily adapted to elementary classroom studio exploration.

■ EDEA 242 Cultural Skills 1.
(3) Development of First Nations and Inuit skills and knowledge in art, music, handicrafts and other areas both modern and traditional. Topics will vary and be chosen from a range identified by instructors and students. Course is seasonally based and will cover summer cultural skills.

■ EDEA 243 Cultural Skills 2.
(3) (Note: Topics will vary and will cover different cultural skills than EDEA 242. Course content is seasonally based.) Development of First Nations and Inuit skills and knowledge in art, music, handicrafts and other areas both modern and traditional.

■ EDEA 296 Basic Design.
(3) Exploration of the basic elements of visual art through two dimensional composition and three-dimensional constructions. Investigation of materials and tools and the processes of manipulating and relating materials.

■ EDEA 302 Special Topics.
(3) Selected topics and contemporary issues in education in the arts. The content will vary from year to year and will be announced prior to registration.

■ EDEA 304 Painting 3.
(3) (Prerequisite: EDEA 205) (The additional course charge of $10 for EDEA 205 and EDEA 304 covers the cost of live models and selected other materials deemed necessary in the instruction of these courses. The fee is refundable until the end of the course add/drop period.) Continuation of course EDEA 205 with emphasis on drawing and structure.

■ EDEA 305 Painting 4.
(3) Continuation of course EDEA 304 with emphasis on advanced composition.

■ EDEA 307 Drawing 2.
(3) (Prerequisite: EDEA 204) (The course includes a fee of $10 for art supplies such as pastels and to cover the cost of live models. The fee is refundable until the end of the course add/drop period.) A course designed to further the individual's natural drawing ability, and to develop a keen, perceptive approach to varied subject matter, including figure drawing.

■ EDEA 314 Instruments in the Classroom.
(3) (The ability to read notation is not a prerequisite) Rhythmic and melodic instruments are introduced and their potential to enhance songs, poems, stories and movement is explored through students' active participation.

■ EDEA 322 Art Curriculum and Instruction - Elementary.
(3) (The course includes a fee of $10 for art supplies such as ink, paper, brushes, fabric, tape, thread, etc. The fee is refundable until the end of the course add/drop period.) An introduction to theories on children's visual expression and perception, lesson planning, and classroom-oriented studio practice.

■ EDEA 341 Listening for Learning.
(3) (The ability to read notation is not a prerequisite) Musical knowledge is developed and articulated through a structured approach to listening. Using recorded examples, students learn how to recognize, identify and discuss musical elements, devices, styles and genres.

■ EDEA 342 Curriculum and Instruction in Drama Education.
(3) Pedagogical theory and practical applications in the teaching of developmental drama, dramatic forms, improvisation and theatre arts.

■ EDEA 345 Music Curriculum and Instruction for Generalists.
(3) Study of materials and instructional techniques grounded in an understanding of basic musical concepts and contemporary theories of music teaching and learning. Definition of musical objectives and rationales, selection and development of materials, review of MEQ guidelines. Participation through singing, movement, listening, discussion and lesson planning and implementation.

■ EDEA 352 Music Listening in Education.
(3) A perceptual development approach to music listening focusing on the relationship between the affective response and the musical stimulus. Designed to enhance the listening experience and to facilitate meaningful discourse about music. No formal music training is required.

■ EDEA 362 Movement, Music and Communication.
(3) Coordination of musical perception and movement and development of communication skills that arise from this combination. Structured and improvised eurhythmic activities are used to explore the relationship between time, space and energy. Classroom applications are explored. No formal music training is required.

■ EDEA 394 Creative Dramatics for Classroom.
(3) A participatory course in creative drama and the use of improvisational techniques in the pursuit of student development.

■ EDEA 396 Speech in Drama Education.
(3) A study of the elements of voice production in teaching public speaking and drama, including training activities to develop the voice in speech and drama. Theoretical aspects of the structure and functioning of the voice and speech mechanism are included.

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† Denotes courses not available as Education electives.

‡ Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.

✦ Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.

† Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
EDEC 404 Painting 5.
(3) (Prerequisite: EDEA 305) Major problems in graphic expression. A tutorial course where the student selects the instructor. Individual conferences and criticism leads the student to an independent approach to painting.

EDEC 405 Painting 6.
(3) (Prerequisite: EDEA 404) The student will be required to work in a variety of sizes up to mural painting. Exploration of selected media and new dimensions of design.

EDEA 407 Final Year Professional Seminar Music.
(3) (Corequisite: EDFE 407) (Restriction: Students in B.Ed. in Music or Concurrent B.Ed. and B.Mus.) Professional competencies and final preparation of professional portfolios will be addressed. Summary of philosophical, theoretical and practical issues related to the profession of teaching.

EDEC 410 Aesthetics and Art for the Classroom.
(3) The course is designed to address the need for teachers to be able to lead students to increased perceptual awareness and critical thinking in relation to their visual environment. Museum visits are a regular component of this course.

EDEC 422 Personnel Management and Support.
(3) (Restriction: Normally for students registered within Certificate in First Nations and Inuit Educational Leadership.) Methods of appropriate and supportive supervision in a First Nations and Inuit community-based educational leaders. Differences between traditional and mainstream institutional practices and leadership skills.

EDEC 423 First Nations and Inuit Education.
(3) (Restriction: Not open to students who have taken EDEE 441. Not for credit if EDEC 248 or EDER 464 has been completed before the 3rd Field Experience. Students are limited to four attempts must withdraw from the teacher preparation program.) Study of First Nations and Inuit educational milieu. Techniques of developing staff members’ potential through staff development and quality improvement processes. A compulsory practicum component will demonstrate students’ transfer of theory to practice.

EDEC 424 Communication in Social Work.
(3) (Restriction: Social Work students who have not taken EDES 201 or EDEC 202) (Because this course uses a workshop format, attendance at first class is desirable.) Written and oral communication in Social Work (in English): emphasis on strategies for identifying, analyzing and solving writing and speaking problems. Course work based on academic and professional communication in social work.

EDEC 204 Communication in Social Work.
(3) (Restriction: Social Work students who have not taken EDES 201 or EDEC 202) (Because this course uses a workshop format, attendance at first class is desirable.) Written and oral communication in Social Work (in English): emphasis on strategies for identifying, analyzing and solving writing and speaking problems. Course work based on academic and professional communication in social work.

EDEC 208 Expressive Writing.
(3) The focus is on strategies for writing authentic, authoritative texts as well as achieving correct grammar and appropriate style as well as the drafting and revising of a collection of short non-fiction pieces in a collaborative setting.

EDEC 215 English Language Requirement.
(0) (Restriction: EDEC 202 must be completed before second attempt) This English Exam for Teacher Certification is a MELS requirement for teaching in the Quebec English school system. Consists of a 2-hour exam designed to assess teacher candidates’ competency in the language of instruction. Must be completed before the 3rd Field Experience. Students are permitted four attempts to pass. Students who do not pass after four attempts must withdraw from the teacher preparation program.

EDEC 220 Curriculum Development.
(3) This course, introducing Aboriginal educators to the principles and processes of curriculum development, emphasizes the impact of language and culture on the development of materials. Features of the process of curriculum and materials design, which are strategically important in meeting the needs of Aboriginal students, are highlighted.

EDEC 221 Leadership and Group Skills.
(3) (Restriction: Normally for students registered within Certificate in First Nations and Inuit Educational Leadership.) Management, effective team leadership, group dynamics, and communications skills crucial to First Nations and Inuit community-based educational leaders. Differences between traditional and mainstream institutional practices and leadership skills.

EDEC 222 Personnel Management and Support.
(3) (Restriction: Normally for students registered within Certificate in First Nations and Inuit Educational Leadership.) Methods of appropriate and supportive supervision in a First Nations and Inuit educational milieu. Techniques of developing staff members’ potential through staff development and quality improvement processes. A compulsory practicum component will demonstrate students’ transfer of theory to practice.

EDEC 227 Naskapi Language 1.
(3) The phonological system, including syntax and morphology. Word generation conventions will be analyzed and labels will be developed to describe how the language functions.

EDEC 228 Naskapi Language 2.
(3) (Prerequisite: EDEC 227) The morphology and syntax analysis of Naskapi at a more advanced level, including the study of word generation conventions. Importance will be placed on developing reading and writing skills.

EDEC 233 First Nations and Inuit Education.
(3) (Restriction: Not open to students who have taken EDEE 441. Not for credit if EDEC 248 or EDER 464 has been completed before the 3rd Field Experience. Students are limited to four attempts must withdraw from the teacher preparation program.) Study of First Nations and Inuit schools as diverse social, cultural, linguistic, political and pedagogical settings. Considers school and community minority-majority interactions and their influence on teaching and learning in educational settings. Examines how a teacher’s personal practice can be influenced by an understanding of these factors.

EDEC-Curriculum and Instruction
Offered by: Integrated Studies in Ed.

EDEC 200 Introduction to Inuit Studies.
(3) An introductory survey of Inuit history, language and culture, and of the social and political issues affecting contemporary Inuit life.

EDEC 201 First Year Professional Seminar.
(1) (Corequisite: EDFE 200) (Restriction: Open to B.Ed. Second and B.Ed. K/Elem. students only) Orientation to the culture of the school and to teaching as a profession, focusing on the general functioning of schools. Professional portfolios will be introduced.

EDEC 202 Effective Communication.
(3) (Restriction: Open to students in the Faculty of Education and/or students who have failed EDEC 215 or EDTL 515 on their first attempt.) Designed to improve English writing and/or speaking skills in a variety of academic and professional situations, emphasizing the identification and correction of common errors in grammar, mechanics and usage, as well as the rhetorical analysis and development of academic and professional communication.

EDEC 203 Communication in Education.
(3) (Because this course uses a workshop format, attendance at first class is desirable. If appropriate, may be included in the academic concentration.) Written and oral communication in Education (in English): emphasis on strategies for identifying, analyzing and solving writing and speaking problems. Course work based on academic and professional communication in education, with a particular focus on classroom communication.
**EDEC 236 Mohawk Second Language 2.**
(3) (Prerequisite: EDEC 296) Students will continue their study of Mohawk syntax and morphology and improve their literacy. Oral skills will focus on basic interactions and classroom commands. Students will discuss the difficulties encountered in learning a second language and consider implications for their students' language learning.

**EDEC 239 Mi'km'aq Language 1.**
(3) Students will learn the phonological system and develop their literacy skills. They will also begin to explore Mi'km'aq syntax and morphology. Word generation conventions will be introduced and Mi'km'aq labels developed to describe how the language functions.

**EDEC 241 Cree Language 1.**
(3) Students will learn their own phonology and see how the phonological system is reflected in dialects. They will learn the spelling rules and develop their literacy skills in syllabics. Finally, they will derive Cree grammatical terms and begin to study Cree morphology and syntax.

**EDEC 242 Cree Language 2.**
(3) (Prerequisite: EDEC 241) Students will study the morphological and syntax analysis of Cree at a more advanced level and begin the study of word generation conventions. In addition, features of Cree that are difficult in first language acquisition will be highlighted and implications for classroom practice discussed.

**EDEC 243 Teaching: Multigrade Classrooms.**
(3) This course introduces students to concepts and strategies for organizing, teaching, and evaluating learning in classes in which there are students from two, three or four grade levels.

**EDEC 244 Issues in Aboriginal Education.**
(3) The content of this course changes depending on the needs and interests of the students and the educational communities participating in programs administered by First Nations and Inuit Education. It always addresses issues related to Aboriginal education, e.g., local control, development of linguistic and cultural policies.

**EDEC 245 Middle School Teaching.**
(3) Explores the philosophy of middle school teaching and how this impacts on the institutional, curricula and instructional decisions made in meeting the specialized needs of Aboriginal adolescents. Particular attention will be paid to how middle school philosophy can be integrated with Aboriginal values.

**EDEC 246 Middle School Curriculum.**
(3) (Prerequisite: EDEC 245) Curriculum principles underlying an integrated approach to learning in the middle school level; surveys various curricula looking at program structures; explores teaching and learning methodologies appropriate for this age level when implementing an integrated curriculum, with particular attention to integrating indigenous language and culture.

**EDEC 247 Policy Issues in Quebec Education.**
(3) (Restriction: Not open to students who have taken EDEM 405.) This course examines the organization of education in Quebec from various perspectives, including historical, political, social and legal. It aims to provide students with sufficient knowledge that they can begin the life-long learning process of a professional educator, aware of, and contributing to, the policy talk on school.

**EDEC 248 Multicultural Education.**
(3) (Restriction: Not open to students who have taken EDEC 410 and EDER 464.) Introduction to theories about intercultural and multicultural education in Quebec and Canadian schools.

**EDEC 249 Global Education and Social Justice.**
(3) A cross-curricular, interdisciplinary approach to teaching/creating learning experiences for students. It will foster critical thinking and nurture lifelong global understanding, active engagement and participation in relation to questions of social, economic, and environmental justice, by infusing these issues in the classroom.

**EDEC 253 Second Professional Seminar (Kindergarten/Elementary).**
(1) (Corequisite: EDFE 256) (Restriction: Open to B.Ed.(K/Elem) students.) Preparation for the second field experience through development of basic practices in planning and teaching in elementary school classrooms. Professional portfolios and competencies will be addressed.

**EDEC 253D1 (0.5), EDEC 253D2 (0.5) Second Professional Seminar (Kindergarten/Elementary).**
(Corequisite: EDFE 256) (Restriction: Open to B.Ed.(K/Elem) students.) (No credit will be given for this course unless both EDEC 253D1 and EDEC 253D2 are successfully completed in consecutive terms) Preparation for the second field experience through development of basic practices in planning and teaching in elementary school classrooms. Professional portfolios and competencies will be addressed.

**EDEC 254 Second Professional Seminar (Secondary).**
(1) (Corequisite(s): EDFE 254) (Restrictions: Open to B.Ed. Sec and concurrent B.Sc. and B.Ed. students.) Preparation for the second field experience through development of basic practices in planning and teaching in secondary school classrooms. Competencies and professional portfolios will be addressed.

**EDEC 254D1 (0.5), EDEC 254D2 (0.5) Second Professional Seminar (Secondary).**
(Corequisite(s): EDFE 254) (Restrictions: Open to B.Ed. Sec and concurrent B.Sc. and B.Ed. students.) (No credit will be given for this course unless both EDEC 254D1 and EDEC 254D2 are successfully completed in consecutive terms) Preparation for the second field experience through development of basic practices in planning and teaching in Secondary school classrooms. Competencies and Professional portfolios will be addressed.

**EDEC 260 Philosophical Foundations.**
(3) (Restriction: Not open to students who have taken EDER 400.) Ideas essential for the development of a coherent educational theory and sound professional practice. Reflections on: the nature of the person, of reality, of knowledge, and of value; the aims of education, the nature of the school and the curriculum, the roles and responsibilities of professional educators.

**EDEC 261 Philosophy of Catholic Education.**
(3) (Restriction: Not open to students who have taken EDER 398.) An exploration of the philosophy of Catholic education, and its relevance in the world today.

**EDEC 262 Media, Technology and Education.**
(3) (Restriction: Not open to students who have taken EDEC 402.) Orientation to the equipment and systems of educational technology. Examination of theories of educational technology, media education and technology education and the exploration and development of possible applications in school settings.

**EDEC 300 Special Topics 1.**
(3) Selected topics and contemporary developments in the areas of elementary and/or secondary education. The content will vary from year to year and will be announced prior to registration.

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EDEC 301 Special Topics 2.
(3) Selected topics and contemporary developments in the areas of elementary and/or secondary education. The content will vary from year to year and will be announced prior to registration.

EDEC 305 Communication in Management 2.
(3) (Prerequisite: EDEC 205 or CCOM 205 or based on the results of Placement Test.) (Restriction: B.Com. students.) (Because this course uses a workshop format, attendance at first class is desirable.) Advanced course (in English) in professional written and oral communication in Management. Assignments include résumés, business proposals, public relations documents and oral presentations. Students use a wide variety of communication technologies such as presentation software, video equipment, e-mail and the Internet.

EDEC 306 Third Year Professional Seminar (Sec).
(3) (Prerequisites: EDFE 254.) (Corequisite: EDFE 351.) (Restriction: Open to B.Ed. Secondary students only) Preparation for the third field experience through engaging in the full spectrum of unit/lesson planning, micro-teaching, critical analysis and self-reflection. Professional portfolios will be addressed.

EDEC 308 Learning to Write Fiction.
(3) Course focuses on basic story elements: character development, plot structure, setting, description, dialogue, point of view and the drafting and revising of stories through a shared experience within a community of supportive readers.

EDEC 309 Learning to Write Poetry.
(3) Basic poetic techniques such as free writing, lineation, metaphor, simile, and scansion. Collaborative development and oral readings.

EDEC 311 Resource Management.
(3) (Restriction: Normally for students registered within the Certificate in First Nations and Inuit Educational Leadership) A problem-solving approach (needs assessment, projections, creative solutions, and proposals) will establish a procedure for proactive management of the First Nations and Inuit educational environment (human, financial, and physical resources). Topics include staffing, finance, budgeting, payroll, and building and equipment maintenance.

EDEC 312 Practicum in Educational Leadership.
(3) (Restriction: Normally for students registered within the Certificate in First Nations and Inuit Educational Leadership) A work-study course within a First Nations and Inuit educational milieu. Supervised practice and application of communication and group skills; staff development and evaluation; human, fiscal, and physical resource management; and community outreach.

EDEC 351 Third Professional Seminar (Secondary).
(2) (Prerequisite: EDEC 254 or EDEC 254D/2D) (Corequisite: EDFE 351) (Restriction: Open to B.Ed. Secondary, B.Sc. and B.Ed. concurrent students only. Not open to students who have taken EDEC 306.) Professional portfolios and competencies will be addressed. Preparation for the third field experience through engaging in the full spectrum of unit/lesson planning and will be announced prior to registration. Professional portfolios and competencies will be addressed.

▲ EDEC 403 The Dialects of Inuktitut.
(3) (Prerequisite: EDEC 344) Study of the main Eskimo-Aleut dialects from Siberia to Greenland, looking at the effect of Inuit migrations across the Arctic on the development of dialectical differences. The main phonological, grammatical and lexical differences between the dialects and the patterns underlying these differences will be examined.

EDEC 404 Fourth Year Professional Seminar (Sec).
(3) (Prerequisites: EDEC 306 or EDEC 351, EDFE 351) (Corequisite: EDFE 451) (Restriction: Open to B.Ed. Secondary students only) Preparation for the final field experience and entry into the teaching profession. Emphasis will be placed on developing the ability to demonstrate ethical and responsible professional behaviour in the performance of duties. Final preparation of professional portfolios will be addressed.

EDEC 405 Fourth Year Professional Seminar (K/Elem).
(3) (Prerequisite: EDEC 355) (Corequisite: EDFE 406) (Restriction: Open to B.Ed. K/Elem. students only) Preparation for the final field experience and entry into the teaching profession. Emphasis will be placed on developing the ability to demonstrate ethical and responsible professional behaviour in the performance of duties. Final preparation of professional portfolios will be addressed.

EDEC 407 Fourth Year Professional Seminar (K/Elem).
(3) (Prerequisite: EDEC 405) Preparation for the final field experience and entry into the teaching profession. Emphasis will be placed on developing the ability to demonstrate ethical and responsible professional behaviour in the performance of duties. Final preparation of professional portfolios will be addressed.

EDEE-Elementary Education
Offered by: Integrated Studies in Ed

EDEE 130 Diagnostic Math Test for B.Ed. K/Elementary.
(0) Diagnostic test designed to determine knowledge and understanding of Elementary school math concepts. Students who do not pass will be required to successfully complete MATH 111.

EDEE 223 Language Arts.
(3) This course will explore the current research and theory of language learning and the practices which provide meaningful language experiences in the context of the pre-school and elementary classroom.

▲ EDEE 224 Language Arts Part 2.
(3) (Prerequisite: EDEE 223) This course will explore the current research and theory of language learning and the practices which provide integrated and meaningful language experiences in the context of the pre-school and elementary classroom.

▲ EDEE 230 Elementary School Mathematics.
(3) (Prerequisite: EDEE 130 or MATH 111) A course specially designed for elementary school teachers to provide the basic foundations, insight and understanding of the Quebec modern elementary mathematics programs.

EDEE 234 Elementary School Geometry.
(3) A course specially designed for elementary school teachers to provide the basic foundations, insight and understanding of the geometry found in the Quebec modern elementary mathematics programs.

EDEE 240 Use and Adaptation of Curricula.
(3) Provincial or Nunavut curricula as a basis for planning, materials production and evaluation. Methods of adapting curricula to local needs and of developing local courses of study in First Nations and Inuit community schools.

EDEE 241 Teaching Language Arts.
(3) (Prerequisite: EDEE 322) Fluency in Inuktitut or another Aboriginal language) Organization and planning of Language Arts programs in Inuktitut or another Aboriginal language. Preparation and presentation of lesson sequences. Use of various techniques to improve language skills in listening, speaking, reading and writing.

EDEE 242 Teaching Mathematics.
(3) An introduction to mathematical concepts and approaches to teaching First Nations or Inuit students at the elementary level. Emphasis on the preparation and use of materials directly related to First Nations or Inuit life.

EDEE 243 Reading Methods in Inuktitut/Cree.
(3) (Prerequisite: Fluency in Inuktitut/Cree syllabics) Overview of reading theories and their application to Inuktitut/Cree; processes used by proficient readers. Methods of teaching reading.

EDEE 245 Orientation to Education.
(3) The First Nations or Inuit classroom as a unique pedagogical setting. Introduction to planning and maintaining a learning environment for First Nations or Inuit children. Study and application of differential learning styles.

▲ EDEE 246 Cultivating Language and Thought.
(3) Study and observation of spoken language development and its maturation in First Nations or Inuit children. Application of observed data to the selection and devising of appropriate materials and methods for pre-school and elementary levels.

EDEE 248 Reading and Writing Inuktitut/Cree.
(3) (Prerequisite: Fluency in Inuktitut/Cree syllabics) Methods of teaching syllabic reading and writing. Understanding the principles of sight word reading instruction, child observation, material development and guided instruction.
▲ EDEE 249 Inuktitut Orthography and Grammar.
(3) (Prerequisite: Fluency in Inuktitut) Structure and morphology of Inuktitut for teachers working in that language. Use of orthography, both qanuiaqajuq (Roman script) and qaniujaqajuq (syllabics) as established by the Inuit Cultural Association.

EDEE 250 The Kindergarten Classroom.
(2) (Restriction: Not open to students who have taken EDEC 310) An orientation to the Kindergarten curriculum. Integration of the school subject areas (language arts, second language, mathematics, social sciences, science, expressive arts, moral and religious education, and physical education) in a manner appropriate to the developmental level of the pre-school child.

EDEE 260 Reading Methods - Early Childhood.
(3) Methods and materials for the teaching of reading in the first cycle of the elementary school.

EDEE 261 Reading Clinic - Early Childhood.
(3) Reading problems at a readiness and basic decoding level presented in a clinic format covering classroom diagnosis and remediation.

▲ EDEE 270 Elementary School Science.
(3) (The course includes a fee of $10 for a lab manual prepared by the professor required for the course. The fee is refundable until the end of the course add/drop period.) Science as a means of exploring and explaining our environment. A study of some of the fundamental concepts and process skills common to most elementary programs.

EDEE 275 Science Teaching.
(2) (Prerequisite: EDEE 270.) (Restriction: Not open to students who have taken EDEC 372 (Teaching Science)) (The course EDEE 275 includes a $10 fee covering the cost of printing for the lab manual required by all students registered for the course. The fee is refundable until the end of the add/drop period.) A study of science programs and teaching strategies appropriate for providing elementary school children with an appreciation of the nature and method of science inquiry.

EDEE 280 Geography, History and Citizenship Education.
(3) (Restriction: Faculty of Education students.) Designed for elementary school teachers. A multi-disciplinary and cross-curricular investigation of various citizenship education themes, geographical regions and historical periods as outlined in the Quebec Education Program.

EDEE 282 Teaching Social Sciences.
(2) (Prerequisite: EDEE 280.) (Restriction: Not open to students who have taken EDEC 382) Programs, materials, and strategies for social studies from Kindergarten through grade six.

EDEE 290 Cooperative Learning.
(3) Principles of cooperative learning and how they may be applied in First Nations and Inuit schools to the creation of team-building classroom activities and to the development of culturally appropriate learning materials.

EDEE 291 Cultural Values and Socialization.
(3) An introduction to the educational implications of cultural values and patterns of socialization of children. Topics will include a description of the cultural values of Aboriginal peoples, home styles of communication, learning and discipline and intercultural educational issues.

EDEE 292 Using Instructional Resources.
(3) Students will learn to find, assess, and use a variety of instructional resources. Specifically, they will learn how to evaluate the instructional value of software packages and other established audio-visual materials; how to make and use simple audio-visual materials; and how to find additional resource material in the library.

▲ EDEE 296 Mohawk Second Language 1.
(3) Students will develop a basic knowledge of the Mohawk phonological system and have some understanding of the morphological and syntactic rules, the stress and intonation patterns which control the language, and how Mohawk culture is reflected in the language.

▲ EDEE 297 Mohawk Language 1.
(3) Students will learn the Mohawk phonological system (including glottal stop, length mark, up and down stress). Syntactically and morphologically, they will focus on the pronoun system (tense included). Word generation conventions will be analyzed and Mohawk labels developed to describe how the language functions.

▲ EDEE 298 Mohawk Language 2.
(3) (Prerequisite: EDEE 297) Students will complete their earlier study of the predictable items in the language, and then will focus on the non-predictable items in Mohawk: irregular verbs, reflexive and semi-reflexive verbs, purposive stem, translocative, etc. Importance will be placed on developing reading and writing skills.

▲ EDEE 325 Children’s Literature.
(3) (Restriction: Not open to students who have taken ENGL 240, ENGL 341) (Limited enrolment) Selection and use of literature suitable for children in the elementary school.

EDEE 332 Teaching Mathematics 1.
(3) (Prerequisite: EDEE 230.) Curriculum trends in teaching mathematics to children. Programs, methods, materials and evaluation procedures appropriate for the elementary school. Please check timetable information for labs schedule.

▲ EDEE 340 Special Topics: Cultural Issues.
(3) Seminars on Inuit culture or on selected aspects of the culture of First Nations peoples. Topics will include historical cultural contacts, native oral tradition, religious beliefs and cultural change. Preparation of a project on an aspect of First Nations or Inuit life will be required.

▲ EDEE 342 Intermediate Inuktitut/Amerindian Language.
(3) (Prerequisite(s): EDEE 249 or equivalent, e.g. EDEE 295, EDEE 298 or permission of Director) A study for Inuktitut/Amerindian language speakers, of Inuktitut/Amerindian language phonology and structure, emphasizing the connection between the two, demonstrating the orderliness of many dialectic differences.

▲ EDEE 344 Advanced Inuktitut/Amerindian Language.
(3) (Prerequisite(s): EDEE 342 or permission of Director) The final course in a set dealing with Inuktitut/Amerindian Language phonology and structure. An understanding of basic Inuktitut/Amerindian Language syntax in particular, rules governing verb and possessive endings.

▲ EDEE 345 Literature and Creative Writing 1.
(3) A study of the development of oral and written poetry and prose in the various dialects of Inuktitut or of another Aboriginal Language from pre-European contact to the present day. Emphasis on themes and structures in contemporary writings. Original production of poetry, narrative, drama and journalism in the selected language is required of each student.

▲ EDEE 346 Literature and Creative Writing 2.
(3) (Prerequisite: EDEE 345) A continuation of course EDEE 345.

EDEE 350 Integrating the Curriculum.
(2) (Corequisites: EDEE 352, EDEE 355, EDFE 303 or EDFE 306) Strategies and methods for integrating the individual subject areas in the elementary school curriculum, using the Quebec curriculum as the primary example.

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† Professional Practice (Stage) in Dietetics involving special prerequisites.
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† Denotes courses not available as Education electives.
○ Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
EDEE 352 Classroom Practices.
(2) (Corequisites: EDEE 350, EDEE 355 and EDPC 303 or EDEE 308) (Restriction: B.Ed. (K/Elem) students)
Theory-based strategies for setting up, managing and teaching in the elementary school classroom.

EDEE 353 Teaching and Learning in the Elementary Classroom.
(3) (Prerequisite: EDEC 253 or EDEC 253D1/D2)
(Co-requisites: EDEE 355 and EDEE 306) (Restrictions: B.Ed (K/Elem) students. Not open to students who have taken EDEE 350 or EDEE 352) Theory-based strategies for setting up, managing and teaching in the elementary school classroom. Methods for integrating the individual subject areas in the elementary school curriculum, using the Quebec curriculum as the primary example. Professional portfolios and professional competencies will be addressed.

EDEE 355 Classroom-based Evaluation.
(3) (Corequisites: EDEE 353, EDEE 306) (Restriction: B.Ed (K/Elem) students) The role of evaluation within kindergarten/elementary school programs. Topics include the kinds of information needed, different techniques for collecting that information, and ways of interpreting it to make educational decisions. Principles and a variety of methods for evaluation are discussed and practiced.

EDEE 435 Mathematics Topics.
(3) (Restriction: Permission of instructor) (Offered through Continuing Education) Seminars and workshops on specific topics in mathematics education. One to three topics will be chosen, from such areas as the construction of teaching materials, evaluation, audio-visual techniques, use of calculating instruments, readiness for mathematics concepts, and curriculum development. This course will make significant use of microcomputers in mathematics education.

EDEE 444 First Nations and Inuit Curriculum.
(3) An introduction to First Nations and Inuit curriculum: how curriculum needs in Aboriginal communities are similar to and different from mainstream ones, the range of ways in which First Nations and Inuit have responded to curriculum needs based on language, culture, and community perceptions.

▲ EDEE 473 Ecological Studies.
(3) (Offered through Summer Studies) A lecture, laboratory and field course to train elementary school teachers in the principles and practices of field biology and nature tours. The observation and identification of various organisms and a study of their ecological relationships in the web of life.

▲ EDEE 474 Problems of the Environment.
(3) (Offered through Summer Studies) A modern study of environmental problems designed for elementary school teachers. The role of humanity in the web of life in relation to conservation, the population explosion, waste disposal, sewage treatment, air and water pollution, chemical and radiation pollution.

EDEM-Admin & Policy Studies in Ed
Offered by: Integrated Studies in Ed

EDEM 202 Native Family Dynamics & Supporting Institutions.
(3) (Restriction: Limited to students enrolled in off-campus programs delivered through First Nations and Inuit Education. Not open to students who have taken EDEM 202 and/or EDPC 208) Native family dynamics and examination of educational and administrative institutions that support families.

EDEM 220 Contemporary Issues in Education.
(3) An introduction to contemporary issues in education in local, national and international contexts, including a critical perspective on educational issues by drawing on a variety of analytical frameworks.

EDER-Religious Studies
Offered by: Integrated Studies in Ed

▲ EDER 207 "Who is Christ?"
(3) An open search for the authentic person of Christ - from Scriptures and present day manifestations.

▲ EDER 209 Search for Authenticity.
(3) A search for meaning in contemporary living as reflected in selected authors.

EDER 252 Understanding and Teaching Jewish Life.
(3) An exploration of Jewish holidays and life cycle rituals. Emphasis is placed on their historical development and philosophical meaning. Curriculum developed for teaching this material in various Jewish educational frameworks is examined and evaluated.

▲ EDER 309 The Religious Quest.
(3) An approach to the study of religious experience as expressed in humanity's major religious traditions, especially Christianity, Judaism, Islam, Hinduism and Buddhism.

EDER 318 Teaching the Jewish Liturgy.
(3) (Restriction: Not open to students who have taken EDER 407.) An examination of curriculum developed for teaching prayer and fostering spirituality within Jewish educational frameworks. Excerpts from the liturgy of the Jewish people are studied with an emphasis on the theological, moral, and philosophical issues that they raise.

EDER 319 Teaching the Holocaust.
(3) (Restriction: Not open to students who have taken EDER 421.) An examination of approaches, strategies, and techniques of teaching the Holocaust, including methodologies for using the Holocaust as a basis for teaching about prejudice, cultural identity, racism, human rights and moral responsibility.

▲ EDER 320 Visions and Realities of Jewish Education.
(3) A course in the philosophy of Jewish education. Various perspectives on the purpose of Jewish education are explored, and consideration is given to how contemporary Jewish ideologies can be translated into educational forms. Challenges facing Jewish education as it approaches the millennium are examined. Research in Jewish education is evaluated.

EDER 360 Ethics and Religious Culture (K/Elementary).
(2) (Restriction: Not open to students who have taken EDER 333) Teaching methods and pedagogical resources for programs in moral education, ethics, and religious culture in the k/elementary school curriculum.

▲ EDER 372 Ethics and Religious Culture (Secondary).
(3) (Prerequisite: A course in World Religion with a RELG or EDER prefix and a course in Ethics with a PHIL or EDER prefix - refer to B.Ed. Secondary Program advising information.) Teaching methods and pedagogical resources for programs in moral education, ethics, and religious culture in the secondary school.

▲ EDER 392 Guiding Religious Response - Secondary.
(3) A study of developmental religious and moral life of the secondary school student, and of the programs and procedures designed to meet this development.

▲ EDER 394 Philosophy of God.
(3) A critical study of the concept of God from a variety of religious, philosophic and mystical perspectives.

▲ EDER 395 Moral Values and Human Action.
(3) A philosophical critical inquiry into the relationship between belief and conduct oriented toward the teacher and his/her role in education.

▲ EDER 401 Teaching Biblical Literature - Jewish School 1.
(3) Examination of Biblical passages raising theological, moral, historical, literary, or linguistic challenges, and their interpretation within the rabbinic tradition and modern scholarship. Methodologies for teaching such passages in Jewish studies classrooms are discussed. Some familiarity with Biblical and Rabbinic Hebrew is essential, but most texts are available in English.

EDER 451 Tutorial in Jewish Education.
(3) A reading course for students who wish to explore intensively the literature in a particular area related to teaching Jewish studies.
EDER 461 Society and Change.
(3) Factors influencing patterns of stability and change in major social institutions and the implications for formal and non-formal education.

EDER 473 Living with Insight.
(3) An examination of the moral and spiritual challenges of the modern and post-modern world. Emphasis will also be placed on the role and responsibility of education in meeting these challenges.

EDER 494 Ethics in Practice.
(3) Fundamental principles of ethics as applied to current moral issues such as abortion, drugs, nuclear war, and discrimination.

EDER 520 Issues in Jewish Education.
(3) Restriction: Not open to students who have taken 422-320 / EDER 320) An exploration of dissenting and complementary perspectives on the purpose of Jewish education. Challenges facing the field of Jewish education are examined. Developments in general education of relevance to Jewish education are considered.

EDER 523 Teaching Judaism: Bible.
(3) Restriction: Not open to students who have taken 422-401 / EDER 401) (Prerequisite: Knowledge of Hebrew, with permission of instructor) A study of selected narrative, poetic and legal portions of the Pentateuch with a view to teaching this material in Jewish schools. An examination of some of the techniques presently used in the teaching of Bible.

EDER 525 Teaching Judaism: Holidays.
(3) Winter) Restriction: Not open to students who have taken 422-250 / EDER 252) An exploration of the rituals, customs, values and historical development of Jewish holidays. Methods of applying this material to the Jewish studies classroom are examined.

EDER 527 Teaching Judaism: Special Topics.
(3) In-depth examination of topics in Jewish education. Content will vary from year to year.

EDER 528 Teaching Judaism: The Holocaust.
(3) Restriction: Not open to students who have taken 422-421 / EDER 421) An exploration of approaches and techniques for the teaching of the Holocaust. Strategies for using Holocaust education as a basis for discussing prejudice and moral responsibility are examined.

EDES-Secondary Education
Offered by: Integrated Studies in Ed

EDES 334 Teaching Secondary Social Studies 1.
(3) (Prerequisite: 18 credits of university social science courses at or above the 200 level) An examination of Quebec and other secondary school social studies curricula: Objectives; theoretical orientation; course structures; curriculum resources. Teaching and learning methodologies both common to the social studies and specific to the disciplines of history, geography, and economics.

EDES 335 Teaching Secondary Science 1.
(3) (Prerequisite: 18 credits of university science courses at or above the 200 level) A survey of the philosophy and curriculum principles behind modern high school courses in the physical and life sciences, especially related to the Quebec context. An examination of teaching methods for junior and senior high school science.

EDES 350 Classroom Practices (Secondary).
(3) (Prerequisites: 18 credits in university mathematics courses at or above the 200 level) Directed observations in secondary schools and the study of the general objectives and curriculum trends. The learning problems, teaching strategies and mathematical concepts encountered in the High School curriculum.

EDES 361 Teaching Secondary English 1.
(3) (Prerequisites: 18 credits of university ENGL, COMS, or LING courses at or above the 200 level) Examination of appropriate materials related to the high school English programs; exploration of various techniques of teaching language, literature, writing and dramatics in the secondary school.

EDES 365 Experiences in Communications.
(3) (Offered through Continuing Education) Personal development of students as communicators; involvement of the imagination in individual and group projects in language and in another chosen medium of communication: analysis of experiences in projects in relation to general problems of communication.

EDES 366 Literature for Young Adults.
(3) Selection and use of literature for the differing abilities and interests of high school students.

EDES 434 Teaching Secondary Social Studies 2.
(3) (Prerequisite: EDES 334.) (Restriction: Not open to students who have taken EDES 389.) This course will examine the nature, content, and methodology of social studies education in the secondary school.

(3) (Prerequisite: EDES 335.) (Restriction: Not open to students who have taken EDES 370.) Principles and procedures for implementation of the general science curriculum in the secondary schools of Quebec. A survey of teaching methods and laboratory management appropriate to the junior and senior high school level.

EDES 453 Teaching Secondary Mathematics 2.
(3) (Prerequisite: EDES 353.) (Restriction: Not open to students who have taken EDEC 338.) This course supplements EDES 353 for students who select Mathematics as a single teachable subject. Evaluation of learning in Mathematics, obstacles to learning, technological aids to learning.

EDES 461 Teaching Secondary English 2.
(3) (Restriction: Open to B.Ed. Secondary students having English as a teaching option.) (Prerequisite: EDES 361) Special interest areas in the teaching of English in the light of contemporary theories and research.

EDET-Vocational Education
Offered by: Integrated Studies in Ed

EDET 360 Teaching Business Subjects.
(3) (Offered through Continuing Education) A course in general teaching principles which will include the teaching and learning process, lesson planning, unit planning, and techniques of instruction specific to: a) Accounting and Business Machines b) Typewriting and Shorthand.

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† Denotes courses not available as Education electives.
▲ Denotes courses with limited enrolment.
† Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
 Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
✱ Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
EDFC-Bachelor of Ed Core Program
Offered by: Education - Dean's Office

EDFC 497 Individual Research Project.
(3)

EDFE-Student Teaching
Offered by: Education - Dean's Office

EDFE 200 First Field Experience (K/Elem & Secondary).
(2) (Corequisite: EDEC 201) (Restriction: Open to B.Ed. Secondary and B.Ed. K/Elem. students) Students are assigned to a school for a "participant observer" field experience for a minimum of 10 days.

EDFE 205 First Field Experience (Music).
(2) (Corequisite: EDEA 206) Ten days of observation and some limited teaching in an elementary school under the supervision of a cooperating music teacher.

EDFE 208 Second Field Experience (Music).
(3) (Prerequisite: EDFE 205.) (Restrictions: Students in B.Ed. in Music and concurrent B.Ed./B.Mus. Not open to students who have taken EDFE 207.) (Note: Expectations for this field experience, according to your program, can be found at www.mcgill.ca/ost.) A minimum of 15 days of supervised teaching in a school.

EDFE 209 First Field Experience (K/Elem).
(2) (Corequisite: EDEA 206) (Corequisite: EDSL 210) (Note: Expectations for this field experience, according to your program, can be found at www.mcgill.ca/ost.) Students are assigned to a school for a "participant observer" field experience for a minimum of 15 days.

EDFE 210 Middle School Practicum.
(3) (Prerequisite: At least 24 credits in the program must have been completed) Supervised practice to provide classroom teaching experience in the middle school context designed to prepare individuals to teach effectively at this level; seminars where participants discuss how best to respond to the social and emotional issues their students face.

EDFE 214 Aboriginal Education Practicum 1.
(3) (Restrictions: Not open to students who have taken EDFE 444.) Open to students registered in the Certificate in Education for First Nations and Inuit.) Observation and limited teaching in an elementary school.

EDFE 216 Stage d'assistant - 2e année.
(3) (Prerequisite(s): EDFE 200, EDFE 205, EDFE 254.) A minimum of 15 days supervised student teaching in a school.

EDFE 246 First Field Experience (Physical Education).
(3) (Prerequisite: EDFE 256) (Note: Expectations for this field experience, according to your program, can be found at www.mcgill.ca/ost.) A minimum of 15 days supervised student teaching in Physical Education in an elementary school.

EDFE 254 Second Field Experience (Secondary).
(3) (Prerequisite: EDEC 300 and EDFE 200) (Corequisite: EDFE 254) (Note: Expectations for this field experience, according to your program, can be found at www.mcgill.ca/ost.) A minimum of 15 days supervised student teaching in a school.

EDFE 254D1 (1.5), EDFE 254D2 (1.5) Second Field Experience (Secondary).
A minimum of 15 days supervised student teaching in a school.

EDFE 255 Second Field Experience (TESL).
(3) (Prerequisites: EDSL 210, EDFE 209.) (Corequisite: EDSL 255) (Restrictions: Open only to B.Ed. TESL students. Not open to students who have taken or are taking EDFE 259.) (Note: Expectations for this field experience, according to your program, can be found at www.mcgill.ca/ost.) A minimum of 15 days supervised student teaching in a school.

EDFE 255D1 (1.5), EDFE 255D2 (1.5) Second Field Experience (TESL).
(3) (Restrictions: EDSL 210, EDFE 209.) (Corequisite: EDSL 255) (Restrictions: Open only to B.Ed. TESL students. Not open to students who have taken or are taking EDFE 259.) (Note: Expectations for this field experience, according to your program, can be found at www.mcgill.ca/ost.) Students must register for both EDFE 255D1 and EDFE 255D2. (No credit will be given for this course unless both EDFE 255D1 and EDFE 255D2 are successfully completed in consecutive terms) (EDFE 255D1 and EDFE 255D2 together are equivalent to EDFE 255.) A minimum of 15 days supervised student teaching in a school.

EDFE 256 Second Field Experience (Kindergarten/Elementary).
(3) (Restrictions: EDFE 256, EDFE 256D1 and EDFE 256D2 together are equivalent to EDFE 256. A minimum of 15 days supervised student teaching in a school.

EDFE 256D1 (1.5), EDFE 256D2 (1.5) Second Field Experience (Kindergarten/Elementary).
(3) (Prerequisites: EDEE 223, EDEE 224, EDEE 225, EDEE 250, EDEE 251, EDEE 252, EDEE 253, EDEE 254, EDEE 255, EDEE 256, EDEE 275, EDEE 282, EDEE 332, EDEE 342, EDEE 400.) A minimum of 15 days supervised student teaching in a school.

EDFE 257 Second Field Experience (Music).
(3) (Restrictions: B.Ed. K/Elementary students. Not open to students who have taken EDFE 253.) (Note: Expectations for this field experience, according to your program, can be found at www.mcgill.ca/ost.) A minimum of 15 days of supervised student teaching in a school.

EDFE 258 Second Field Experience (Physical Education).
(3) (Prerequisites: EDFE 254, EDFE 258.) A minimum of 15 days supervised student teaching in Physical Education in an elementary school.

EDFE 261 Stage d'assistant - 2e année.
(3) (Prerequisites: EDFE 200, EDFE 254, EDFE 255.) A minimum of 15 days supervised student teaching in a school.

EDFE 263 Third Field Experience (Kindergarten/Elementary).
(3) (Prerequisites: EDFE 200, EDFE 256, EDFE 258, EDFE 259, EDFE 261.) A minimum of 15 days supervised student teaching in a school.

EDFE 266 Third Field Experience (Secondary).
(3) (Prerequisites: EDFE 200, EDFE 254.) (Restrictions: B.Ed. K/Elementary students. Not open to students who have taken EDFE 306.) (Note: Expectations for this field experience, according to your program, can be found at www.mcgill.ca/ost.)
A minimum of 40 days of supervised student teaching in a school.

EDFE 308 Third Field Experience (Music).
(8) (Prerequisites: EDEC 215, EDFE 208.) (Restrictions: Students in B.Ed. in Music and concurrent B.Ed./B.Mus. Not open to students who have taken EDFE 305.) (Note: Expectations for this field experience, according to your program can be found at www.mcgill.ca/ost.) A minimum of 40 days of supervised student teaching in a school.

EDFE 325 Aboriginal Education Practicum 2.
(3) (Restrictions: Not open to students who have taken EDFE 422. Open to students registered in the Certificate in Education for First Nations and Inuit.) Supervised teaching of designated subject areas in an elementary school.

EDFE 326 Aboriginal Education Practicum 3.
(3) (Restrictions: Not open to students who have taken EDFE 423. Open to students registered in the Certificate in Education for First Nations and Inuit.) Supervised teaching of designated subject areas for a specific number of weeks in an elementary school, including assuming more responsibility for student learning, classroom management and formative and summative evaluation.

EDFE 351 Third Field Experience (Secondary).
(8) (Prerequisites: EDFE 254 or EDFE 254D1/D2), (EDEC 254 or EDEC 254D1/D2), EDEC 215.) (Corequisite: EDEC 351.) (Restriction: Students must have completed, with a grade of C or higher, a minimum of 24 credits in a teachable subject and have taken the corresponding Methods courses as a co-requisite.) (Note: Expectations for this field experience, according to your program, can be found at www.mcgill.ca/ost.) A minimum of 40 days of supervised student teaching in a school.

EDFE 359 Third Field Experience (TESL).
(8) (Prerequisites: EDEC 215, (EDSL 259 or EDSL 259D1/D2), (EDSF 259 or EDSF 259D1/D2).) (Corequisites: EDSL 315 and EDSL 447) (Note: Expectations for this field experience, according to your program, can be found at www.mcgill.ca/ost.) A minimum of 40 days of supervised student teaching in a school.

EDFE 362 Stage d'enseignement en Français langue seconde.
(7) (Prerequisite: EDFE 261) (Corequisites: EDSL 320 and EDSL 472) Enseignement accompagné d'un enseignant associé, avec prise en charge d'une classe.

EDFE 373 Second Field Experience (Physical Education).
(3) (Prerequisite: EDFE 246) (Note: Expectations for this field experience, according to your program, can be found at www.mcgill.ca/ost.) A minimum of 15 days of supervised student teaching in Physical Education in a secondary school.

EDFE 380 Third Field Experience (Physical Education).
(7) (Prerequisite: EDFE 373) (Corequisite: EDKP 442.) (Restriction: Only open to B.Ed. Physical and Health Education students.) (Note: Expectations for this field experience, according to your program, can be found at www.mcgill.ca/ost.) A minimum of 40 days of supervised student teaching in Physical Education in a school.

EDFE 406 Fourth Field Experience (K/Elem).
(7) (Prerequisite: EDEE 223, EDEE 322, EDEE 275, EDEE 282, EDIE 303 or EDIE 306.) (Corequisite: EDEE 405) (Restriction: Restricted to B.Ed. (K/Elem) students.) (Note: Expectations for this field experience, according to your program, can be found at www.mcgill.ca/ost.) A minimum of 35 days of supervised student teaching in a school. Students will be expected to assume an increasing responsibility for students' learning, classroom management and formative and summative evaluations.

EDFE 407 Fourth Field Experience (Music).
(7) (Prerequisite: EDFE 308 or EDFE 305.) (Corequisite: EDEA 407.) (Restriction: Students in B.Ed. in Music and the Concurrent B.Ed./B.Mus.) (Note: Expectations for this field experience, according to your program, can be found at www.mcgill.ca/ost.) Thirty-five days of teaching in a secondary school under the supervision of a cooperating music teacher. Students will gradually assume more responsibility for student learning, formative and summative evaluation, and will be expected to experience a full teaching load.

EDFE 425 Aboriginal Education Practicum 4.
(3) (Restrictions: Not open to students who have taken EDFE 394. Open to students registered in the Certificate in Education for First Nations and Inuit.) Teaching and classroom management skills at the elementary and secondary levels.

EDFE 451 Fourth Field Experience (Secondary).
(7) (Prerequisites: EDFE 351.) (Corequisite: EDEC 404.) (Restriction: Open to B.Ed. Secondary students only) (Note: Expectations for this field experience, according to your program, can be found at www.mcgill.ca/ost.) A minimum of 35 days of supervised student teaching in a school. Students will be expected to assume an increased responsibility for students' learning, classroom management and formative and summative evaluations.

EDFE 459 Fourth Field Experience (TESL).
(9) (Prerequisite: EDFE 362 or EDFE 361 or EDFM 361) (Corequisites: EDSL 345, EDSL 420.) Enseignement accompagné d'un enseignant associé, avec prise en charge d'une classe en immersion.

EDFE 480 Fourth Field Experience (Physical Education).
(7) (Prerequisite: EDFE 380) (Corequisite: EDKP 494.) (Restriction: Only open to B.Ed. Physical Education students) (Note: Expectations for this field experience, according to your program, can be found at www.mcgill.ca/ost.) A minimum of 35 days of supervised teaching Physical Education in a school.

EDFM-Education Field Montreal
Offered by: Education - Dean's Office

EDFM 260 Stage de familiarisation.
(1) (Restriction: Not open to students who have taken UdeM: EDU 1006 or EDFE 260) Stage de familiarisation à l'école en milieu pluriethnique et d'introduction à la fonction enseignante. Observation des élèves à l'école. Contacts avec des intervenants. Étude du projet éducatif.

EDFM 361 Stage d'enseignement 1.
(7) (Prerequisites: EDSL 260, EDFE 261.) (Corequisites: EDSL 391 or EDUM 391, and EDSL 394 or EDUM 394.) (Restriction: Not open to students who have taken UdeM: EDU 3006 or EDFE 361) Enseignement au secondaire en milieu pluriethnique. Gestion de classe, intervention et réflexion sur les pratiques. Réalisation de projets.

EDFM 460 Stage d'enseignement 2.
(9) (Prerequisites: EDSL 402 or EDUM 402, and EDFE 361 or EDFM 361) (Corequisites: EDSL 498 or EDUM 498, and EDSL 499 or EDUM 499) (Restriction: Not open to students who have taken UdeM: EDU 4006 or EDFE 460) Enseignement en milieu pluriethnique. Gestion de classe, intervention et réflexion sur les pratiques. Réalisation

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Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
EDKP-Kinesiology & Physical Education

EDKP 200 Weight Training.

EDKP 204 Health Education.
(3) A study of the teacher’s role in the total school health program at both elementary and high school levels; current issues in contemporary health education.

EDKP 206 Biomechanics of Human Movement.
(3) (Prerequisite: PHYS 101 OR PHY 131) Analysis of fundamental human movement and the kinematic concepts which underlie each: Stability, agility, walking, running, jumping, throwing, absorbing forces, striking, kicking, spinning, twisting, aquatic and work positions.

EDKP 208 Biomechanics and Motor Learning.
(3) (Prerequisite: EDKP 293.) (Restriction: Not open to students who have taken EDKP 206.) Nature and mechanical function of human movement in sport, dance, physical recreation and adapted movement activities.

EDKP 213 Aquatics 1.
(1)

EDKP 214 Basketball 1.
(1)

EDKP 217 Track & Field / Cross Country.
(2) Skills and techniques of the various disciplines in track and field/cross country and the teaching and evaluation strategies for the elementary and secondary school levels.

EDKP 218 Volleyball 1.
(1)

EDKP 219 Healthy Lifestyle Activity.
(1) An introduction to activities designed to meet personal needs and self-management skills necessary to adopt healthy lifestyles. Emphasis is on activities that foster mind-body connections, aerobic fitness, muscular tone, balance, and range of motion. Activities may include yoga, tai-chi, pilates, aerobics, walking, in-line skating, and cycling.

EDKP 223 Games: Principles and Practice.
(2) Use of games as a teaching strategy to develop physical fitness, tactical understanding, technical ability, game sense and social skills. Specific connections will be made to the three competencies in the Quebec Education Program.

EDKP 225 Games: Principles and Practice 2.
(1) (Prerequisite: EDKP 223) Examination of how to teach team sports at the secondary level, using the "Teaching Games for Understanding" approach, focusing on teaching methodology and classroom management in order to plan, deliver and assess all team sports that are part of a secondary program. Specific connections to the OEP will be made and development of a series of "Learning Evaluation Situations" applicable to various levels.

EDKP 226 Quebec Education Program Orientation.
(1) (This course builds on the work done in Games Principles and Practice 1 EDKP 223 and Physical Education Methods EDKP 342 with regards to the Quebec Education Program.) Comprehensive review of the Quebec Education Program with specific emphasis on the Physical and Health Education component, analyzing the socio constructivist-learning model.

EDKP 227 Rugby.
(1)

EDKP 228 Football 1.
(1)

EDKP 229 Ice Hockey 1.
(1)

EDKP 231 Martial Arts.
(1)

EDKP 233 Soccer.
(1)

EDKP 234 Team Handball.
(1)

EDKP 236 Softball.
(1)

EDKP 238 Field Hockey 1.
(1)

EDKP 240 Winter Activities.
(1)

EDKP 241 Aboriginal Physical Activities.
(3) (Restriction: Open only to students in the Certificate in Education for First Nations and Inuit) This course is designed to prepare students to teach physical recreation activities of their Aboriginal culture. The course will include native games, stunts, combatives, gymnastics and dance activities belonging in the cultural context.

EDKP 244 Dance and Fitness.
(1)

EDKP 245 Special Topics 01.
(1)

EDKP 250 Practicum 1.
(3) A practical work-study experience with a focus on instruction and leadership in fitness. Work will be in a community placement under a qualified sponsor selected with the approval of the Department.

EDKP 252 Racquet Sports.
(2) (Restriction: Not open to students who have taken EDKP 226 and EDKP 235) Basic stroke techniques, rules and strategies, and teaching skills appropriate for various types of racquet sports.

EDKP 253 Educational Gymnastics.
(1) (Restriction: Not open to students who have taken EDKP 216 and EDKP 210) Role of gymnastics in elementary education from a discovery/problem solving approach, including Laban's Framework of Human Movement and how it is used to teach and evaluate gymnastics.

EDKP 254 Principles of Dance.
(1) (Restriction: Not open to students who have taken EDKP 202 and EDKP 243) Function of dance in different cultures and societies as well as the role of dance in education; as physical activity and means of self-expression. Emphasis on progressions and methods of teaching different types of dance to various age groups and to guide students in the planning and implementing of appropriate dance activities across the curriculum.

EDKP 261 Motor Development.
(3) Changes apparent in motor behaviour from conception to old age. Two perspectives are emphasized: 1) contemporary and historical theories of human development, 2) development of motor behaviour and influences of physical growth, sensori-perceptual development, information processing and socio-cultural factors.

EDKP 292 Nutrition and Wellness.
(3) (Restriction: Not open to students who have taken EDKP 392) This course will examine the role of carbohydrates, fats, proteins, vitamins, minerals and water in a balanced diet. Students will be introduced to the affects of nutrition on exercise, sport performance and wellness. The validity of claims concerning nutrient supplements will be studied.

EDKP 293 Anatomy and Physiology.
(3) (Restriction: Not open to students who have taken EDKP 205 and EDKP 331) Basic foundations of structural, neuromuscular and visceral anatomy extending to the basic elements of the neuromuscular, circulatory and respiratory systems with emphasis on applications in instructional and coaching settings.

EDKP 300 Special Topics 02.
(3) Content will vary from year to year and will be announced prior to registration. The course will be given by a single instructor or by a group, as the occasion warrants.

EDKP 307 Evaluation in Physical Education.
(3) (Prerequisite: EDFE 246) (Restriction: Not open to students who have taken EDKP 207) Measurement and evaluation techniques designed to assess progress in physical education settings.
EDKP 311 Athletic Injuries.  
(3) (Prerequisite: EDKP 205) This course is designed to educate students about the prevention, immediate care, and minor rehabilitation of athletic injuries. The course will focus on specific situations encountered in elementary, high school and fitness centers. An intensive academic program is coupled with practical lab sessions and field experience.

EDKP 314 Basketball 2.  
(1)

EDKP 318 Volleyball 2.  
(1)

EDKP 330 Physical Activity and Health.  
(3) This course introduces students to literature on the role of physical activity and general health and well-being. Students will examine issues of exercise adherence, exercise prescription and the economic impact of physical fitness programs in the workplace.

EDKP 332 Physical Education Curriculum and Instruction.  
(3) (Restriction: Not open to P.E. Majors) Principles, programs and procedures that an elementary teacher may use to promote the design and teaching of elementary school P.E.

EDKP 336 Lacrosse.  
(1)

† EDKP 342 Physical Education Methods.  
(3) (Prerequisite: EDKP 223.) This course is a prerequisite for all field experience and practice. Designed to prepare students for a teaching/leadership role in physical education. They will examine teaching/leadership effectiveness as it relates to organization and observation techniques, planning, instruction and evaluation of physical activity.

† EDKP 350 Physical Fitness Evaluation Methods.  
(3) (Restriction: Open to BSc (Kinesiology) students only.) Protocols to evaluate physical fitness, including interpretation and evaluation of results, and prescription of exercise training programs for healthy populations.

▲ EDKP 391 Physiology in Sport and Exercise.  
(3) (Prerequisite: EDKP 293 or equivalent.) Examination of the responses of the human body during and following acute and chronic exercise with practical applications for a school setting.

EDKP 394 Historical Perspectives.  
(3) A historical survey of the form and function of organized sport and physical activity.

EDKP 395 Exercise Physiology.  
(3) (Prerequisites: PHGY 201 or PHGY 209 and PHGY 202 or PHGY 210.) Examination of the physiological responses of the neuromuscular, metabolic, endocrine, and circulatory and respiratory systems to acute and chronic exercise.

EDKP 396 Adapted Physical Activity.  
(3) (Restriction: Not open to students who have taken EDKP 496) Assessment, instruction and evaluation in physical activity for special populations. Emphasis on inclusion of people labelled intellectually disabled, learning disabled, physically awkward, autistic, visually or hearing impaired and physically disabled. Weekly lectures plus practical teaching lab.

EDKP 400 Special Topics 03.  
(3)

EDKP 405 Sport in Society.  
(3) (Prerequisite: EDKP 261) (Corequisite: EDKP 498) (Restrictions: Not open to students who have taken EDKP 505) An examination of the cultural, social, political and economic factors that influence sport in society. Special attention to the effects of gender, financial constraints and political policies on involvement in physical activity and sports programs.

EDKP 442 Physical Education Pedagogy.  
(3) (Prerequisites: EDKP 342, EDFE 246 and EDFE 373) This pedagogy course builds on physical education methods and field experiences. It focuses on the developing teacher, the establishment of the learning environment, and the implementation of the varied teaching strategies. Principles of research on teaching in physical education are translated into practical techniques for application in the field.

EDKP 443 Research Methods.  
(3) (Prerequisites: PSYC 204 or equivalent.) How to conduct and understand research in physical activity, including a complete overview of the research process, statistical and measurement concepts in research, the various types of research including both quantitative and qualitative aspects, as well as ways of presenting research.

EDKP 444 Ergonomics.  
(3) (Prerequisites: EDKP 205, EDKP 206.) An examination of ergonomic issues including: injury mechanisms, evaluation and assessment techniques, occupational health and safety legislation, and ergonomic interventions.

EDKP 445 Exercise Metabolism.  
(3) (Prerequisite: EDKP 395.) The biochemical structure and regulation of major biochemical pathways related to exercise. Examine the hormonal regulation of lipid, carbohydrate and protein metabolism during short and prolonged exercise as well as the influence of physical training. Examine gender-related differences and exercise metabolism.

EDKP 446 Physical Activity and Ageing.  
(3) (Prerequisite: EDKP 395.) Review of ageing-related changes in circulatory, respiratory, neuromuscular, hormonal, metabolic and immune systems as they relate to functional limitations and the physiological responses to acute and chronic exercise. Examination of the role of exercise in mitigating ageing response.

EDKP 447 Motor Control.  
(3) (Prerequisites: EDKP 206, PHGY 201 or PHGY 209, PHGY 202 or PHGY 210, EDKP 261) Basic concepts of neuromuscular control of human limb movement. Neural circuitry of sensorimotor networks in the spinal cord and brains. Principles of feedback and feedforward control of body mechanics. Neural mechanisms of motor learning and adaptation.

EDKP 448 Exercise and Health Psychology.  
(3) (Prerequisite: EDKP 261) The psychological aspects of health and participation in exercise and physical activity. The application of psychological knowledge and methodology within exercise and health. Theory and evidence on selected topics in this area of study.

EDKP 449 Exercise Pathophysiology 2.  
(3) (Prerequisite: EDKP 395.) Review of the physiological bases of selected disorders of the immune, renal, neurological and muscular-skeletal systems and an examination of the particularities of exercise responses and the effects of exercise conditioning in these populations. A special emphasis on the scientific bases for exercise prescription.

† EDKP 450 Practicum 3.  
(3) (Prerequisites: EDKP 250 and EDKP 350) A work-study experience with a focus on administration and program development in fitness. Work will be in a community placement under a qualified sponsor selected with the approval of the Department.

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EDP 451 Personal Trainer Practicum.
(3)

EDP 453 Research Practicum in Kinesiology.
(3) (Prerequisites: EDPK 206, EDPK 395.) (Note 1: EDPK 453D1 and EDPK 453D2 together are equivalent to EDPK 453) Supervised directed study and research leading to the development of a formal undergraduate thesis proposal.

EDP 453D1 (1.5), EDPK 453D2 (1.5) Research Practicum in Kinesiology.
(Prerequisites: EDPK 206, EDPK 395.) (Students must register for both EDPK 453D1 and EDPK 453D2.) (No credit will be given for this course unless both EDPK 453D1 and EDPK 453D2 are successfully completed in consecutive terms.) (EDPK 453D1 and EDPK 453D2 together are equivalent to EDPK 453.) Supervised directed study and research leading to the development of a formal undergraduate thesis proposal.

EDP 485 Exercise Pathophysiology 1.
(3) (Prerequisite: EDPK 395.) The physiological bases of selected cardiovascular, respiratory and metabolic disorders and an examination of the particularities of exercise responses and the effects of exercise conditioning in these populations. A special emphasis on the scientific bases for exercise prescription.

EDP 494 Physical Education Curriculum Development.
(3) (Prerequisite: EDPK 442) Analysis of important philosophies, principles, and personal, educational, and societal issues that influence current physical and health education curricula with particular emphasis on the Québec curriculum for Physical Education and Health.

EDP 495 Scientific Principles of Training.
(3) (Prerequisite: EDPK 395.) Application of physiological and kinesiological principles in the selection and evaluation of athletic and physical fitness programs. Specific topics studied will include aerobic and anaerobic training, interval training, circuit training, weight training for muscular strength and endurance, flexibility, motor ability, obesity and energy balance.

EDP 498 Sport Psychology.
(3) (Prerequisite: EDPK 261) The psychological aspects of participation in sport and physical activity relative to performance enhancement.

EDP 499 Undergraduate Honours Research Project.
(6) (Prerequisite: EDPK 453) (Restriction: Open only to students enrolled in the B.Sc.(Kinesiology); Honours in Kinesiology program.) Supervised preparation of an Honours research project under the direction of a faculty member.

EDP 504 Health & Lifestyle Education.
(3) This course will focus on content development and implementation of health and Lifestyle concepts within the elementary and secondary physical education curriculum. Emphasis through lectures and labs will allow students' participation and experimentation of activities that could be taught in classroom and/or physical education settings.

EDP 566 Advanced Biomechanics Theory.
(3) (Prerequisite(s): EDPK 205 and 206) (Restriction(s): Not open to students who have taken EDPK 303 or EDPK 568) Examination of biomechanical applications in various contexts such as clinical, ergonomic, sport, aging, comparative, robotics.

EDPC-Ed Psych & Couns (Counselling)
Offered by: Educational&Counselling Psych

EDPC 201 Introduction to Student Advising.
(3) Introduction to student advising and guidance including personal, vocational, and educational aspects of services normally found in Aboriginal school settings. Role of the student personnel advisor at both the elementary and secondary levels.

EDPC 202 Helping Skills Practicum 1.
(3) (Prerequisite: EDPK 201) Basic interviewing and helping skills relevant to the helping profession in Aboriginal settings. Interpersonal skills which facilitate the prevention and amelioration of problems.

EDPC 203 Helping Skills Practicum 2.
(3) (Prerequisite: EDPK 202) Parent and student interviews. Practicing interviewing techniques within the context of the student's own community and culture.

EDPC 205 Career/Occupational Development.
(3) (Prerequisite: EDPK 203) Career patterns development, occupational choice relevant to native and northern careers. Basic studies of career development and career/educational planning in northern communities. Employment trends, occupational classification and information.

EDPC 206 Group Leadership Skills.
(3) (Prerequisite: EDPK 203) Animation and practice of group leadership skills. Students learn to organize and lead groups, how and when to use groups for particular settings and topics.

EDPC 208 Native Families' Dynamics.
(3) (Prerequisite: EDPK 203) Adolescent sexuality and concurrent problems, substance addictions, physical abuse and violence, and suicide within the milieu of the native family, with a review of possible basic interventions for remediation. The roles of teachers, counsellors, social workers, physicians and legal authorities.

EDPC 209 Basic Crisis Intervention Skills.
(3) (Prerequisite: EDPK 208) Models and methods of crisis intervention as well as the development of skills in working with individuals experiencing emotional trauma, and identifying referral sources for individuals who require medical or psychiatric consultation.

EDPC 210 Field Experience.
(3) (Prerequisite: EDPK 202) An extended practicum experience which commences at the beginning of formal academic training. On-going development of student personnel services training experience at the individual and group level, “progress file” and evaluation of performance over the course of training, organization and administration of student personnel services. This comprises site visits, workshops and seminars interwoven with the other courses.

EDPC 501 Helping Relationships.
(3) (Offered through Continuing Education.) A course in the basic principles of human relationships and communication skills, approached from a theoretical and experimental viewpoint. An emphasis will be given to training in basic listening skills, interviewing techniques, and the interpretation of non-verbal behaviour and communication.

EDPC 502 Group Processes and Individuals.
(3) (Offered through Continuing Education.) A laboratory course in which participants observe individual dynamics within a group setting as well as understand the developmental phases of the group. Participants will be encouraged to experiment with their own behaviour, in order to increase their own awareness of functioning.

EDPC 503 Human Sexuality: Professionals.
(3) Historical, biological, anthropological, psychological and sociological perspectives of human sexual development. Sexual dysfunctions and approaches to sex therapy. Attitudes toward sexuality held by professional helpers relative to their implications for the learning and teaching of human sexuality and sex therapy.

EDPC 504 Practicum: Interviewing Skills.
(3) (Offered through Continuing Education.) (Prerequisite: EDCP 501) This course will enable students to become practitioners in the field of Applied Social Sciences. Theoretical principles of the helping relationship will be applied in particular situations. Demonstration, lecture, role-playing and psychodrama techniques will be used.

EDPC 505 Crisis Intervention Processes.
(3) (Offered through Continuing Education.) Instruction in the skills of working with crisis situations involving persons emotionally disturbed, suicidal, or alcoholic, and those who are on drugs or experiencing emotional trauma, as well as other problems. Attention will be given to identification of referral
EDPC 507 Practicum: Group Leadership Skills.
(3) (Offered through Continuing Education.) (Prerequisite: EDPC 502) The practical aspects of group leadership, group design and planning. Candidates will set up groups, conduct such groups over a number of sessions, and assess these groups according to the theoretical models covered in the prerequisite course.

EDPC 508 Seminar in Special Topics.
(3) (Offered through Summer Studies.) Content will vary from year to year and will be announced prior to registration. The seminar may be given by a single instructor or by a group, as the occasion warrants.

EDPC 509 Individual Reading Course.
(3) (Restriction: Permission of Program Director required) (By arrangement with individual instructor.)

EDPC 510 Family Life Education and Marriage.
(3) (Offered through Continuing Education.) The contribution of central concepts of psychological theories and therapeutic systems to the understanding of marriage and relationships. Special attention will be given to gender and ethnicity issues in order to increase the sensitivity of students to the issues typically confronted in the modern marriage and family.

EDPC 511 Demyxifying Death & Dying.
(3) (Restriction: Open to U3 students or higher. Priority will be given to Educational and Psychology graduate, diploma and certificate students.) The impact of death and dying on individuals, the family, the community and society.

EDPC 540 Foundation of Family Life Education.
(3) (Restriction: Not open to students who have taken EDPC 640) (Offered through Continuing Education.) An examination of the psychological and sociological foundations of family life education tracing the evolution of theory, research and practice within this domain.

EDPC 542 Counselling Role of the Teacher.
(3) (Offered through Continuing Education or Summer Studies.) Theory and practice in interpersonal communication, interviewing, group dynamics, group leadership management, and referral criteria and procedures for students with developmental problems who experience trauma or crisis. Addressed primarily to elementary and secondary teachers who combine instructional responsibilities with a supportive role in school guidance and counselling activities.

EDPC 547 Career Education and Guidance.
(3) (Offered through Continuing Education or Summer Studies.) A review of career education and guidance programs that refer to the subject matter and related methods and techniques designed to foster the intellectual development of career awareness, career planning, career decision-making, and the necessary career-resilient employability skills for the school-to-work transition.

EDPC 548 Career Education and Guidance.
(3) (Offered through Continuing Education or Summer Studies.) Theory and practice in interpersonal communication, interviewing, group dynamics, group leadership management, and referral criteria and procedures for students with developmental problems who experience trauma or crisis. Addressed primarily to elementary and secondary teachers who combine instructional responsibilities with a supportive role in school guidance and counselling activities.

EDPC 550 Consciousness and Virtual Reality.
(3) (Restriction: Not open to students who have taken EDPC 650.) An exploration of the nature and role of consciousness from the virtual reality research perspective, and the implications of virtual reality and cyberspace in education.

EDPE-Ed Psych & Couns (Psychology)
Offered by: Educational & Counselling Psych

EDPE 208 Personality and Social Development.
(3) (Restriction: Not available for Psychology Major students or any student who has taken or is required to take PSYC 304 in the Psychology Department) Personality, social behavior, and moral development from nursery school up to, but not including, adolescence. Emphasis on aspects of personality and social development that are related to the process of schooling.

EDPE 300 Educational Psychology.
(3) (Prerequisites: PSYC 213 or permission of the instructor) Cognition and learning in educational domains and contexts. Contributions of cognitive science to issues in education including domain-specific and general knowledge and expertise, situated cognition and learning, cognitive apprenticeship, and uses of computers and networks as cognitive tools in educational settings.

EDPE 304 Measurement and Evaluation.

EDPE 335 Instructional Psychology.
(3) (Prerequisites: An introductory course in psychology or EDPE 300) Psychological processes in instruction and learning, assessment, and curriculum design, based on theories of cognition, motivation, and the social context of instruction.

EDPC 355 Cognition and Education.
(3) (Offered through Continuing Education or Summer Studies) Development of personality and social behaviour in adolescence. Problems relating to self-concept, academic achievement, relationships with others, and development of values in a changing culture. Some attention to current criticisms of the school as an agency involved in adolescent development.

EDPE 495 Individual Reading Course.
(3) (By arrangement with individual instructor. Permission must be obtained from the Department before registration) Cognition and learning in educational domains and contexts. Contributions of cognitive science to issues in education including domain-specific and general knowledge and expertise, situated cognition and learning, cognitive apprenticeship, and uses of computers and networks as cognitive tools in educational settings.

EDPE 502 Theories of Development and Disabilities.
(3) Developmental theory to form a foundation for scholarly, empirical, and applied work with both typical and atypical populations.

EDPE 515 Gender Identity Development.
(3) (Prerequisite: EDPE 208, EDPE 300 or a course in developmental psychology) Theoretical models and empirical findings relevant to the development of gender identity. Special attention is given to the influence of peers in school settings.

EDPE 535 Instructional Design.
(3) This course draws on the fields of learning theory, developmental psychology, and measurement to focus on the tasks of constructing instructional materials. Areas to be considered include behaviour analysis, concept formation, and test construction.

EDPE 550 Consciousness and Virtual Reality.
(3) (Restriction: Not open to students who have taken EDPE 650.) An exploration of the nature and role of consciousness from the virtual reality research perspective, and the implications of virtual reality and cyberspace in education.
EDPE 555 Applied Cognitive Science.
(3) Examination of foundations of cognitive science including contributions by psychology, linguistics, and computer science. Consideration of theory and methodology or cognitive science in educational and instructional contexts.

EDPE 560 Human Development.
(3) (Offered through Continuing Education.) A review of current theory and knowledge of human development through the life cycle. Particular attention is given to emotional and social development. All major age-stages are considered. Emphasis is placed on the effects of interaction between individuals of these different age groupings.

EDPE 561 Artificial Intelligence in Education.
(3) (Restriction: Not open to students who have taken EDPE 660.) An exploration of the principles of artificial intelligence as a metaphor for understanding conventional instructional and learning-processes. Topics include expert systems, intelligent computer-assisted instruction, tutoring systems, fifth-generation languages, and logic programming (e.g. Prolog). Lectures, discussion, demonstrations, and where possible site visits and hands-on experience will be provided.

EDPE 564 Family Communication.
(3) (May be offered through Summer Studies) Family communication processes and interpersonal reactions in the context of marriage and the contemporary family will be considered. Attention will be given to role changes and the effect of crises on marital and family relationships.

EDPE 575 Educational Measurement.
(3) (Offered through Continuing Education and Summer Studies.) Statistical measurements in education, graphs, charts, frequency distributions, central tendencies, dispersion, correlation, and sampling errors.

EDPI 595 Seminar in Special Topics.
(3) (Restriction: Permission must be obtained from the Department before registration.) The content of the seminar will vary from year to year and will be announced prior to registration. The seminar may be given by a single instructor or by a group, as the occasion warrants.

EDPI 596 Seminar in Special Topics.
(3) (Summer) Seminar in selected topics in Educational and Counselling Psychology. The topic will vary from year and will be announced prior to registration.

EDPE-Ed Psych & Couns (Inclusive)
Offered by: Educational&Counselling Psych

EDPI 211 Social and Emotional Development.
(3) (Offered through Continuing Education. Limited to students enrolled in First Nations and Inuit Education programs.) Intensive training in observation of the development and behaviour of children as individuals and as members of modern First Nations or Inuit society. Study of educational implications of both common and divergent behaviour. Development of relevant teaching practices.

EDPI 212 Perceptual Motor Development.
(3) (Offered through Continuing Education. Limited to students enrolled in First Nations and Inuit Education programs) Observation of perceptual-motor aspects of child development at the pre-school and elementary levels. Application of observations to teaching methods and materials, curriculum, classroom management and evaluation.

EDPI 309 Exceptional Students.
(3) (Restriction: Open to B.Ed. and Concurrent students only.) (Offered through Continuing Education or Summer Studies.) Evolution of special education to inclusive education; characteristics, teaching practices, and teachers' roles in inclusive classrooms. Overview of characteristics, causes, needs, and teaching strategies for students with exceptionalities; including students with intellectual, emotional, behavioural, sensory, physical and learning differences.

EDPI 341 Instruction in Inclusive Schools.
(3) (Restriction: Open to B.Ed. students only) (Also offered through Continuing Education.) Planning, implementing and evaluating curriculum and instruction for students with exceptionalities. Using technology and adapting curriculum and instruction for learners with varying abilities, learning styles, and needs. Collaboration with students, families, and other educators in the instructional process. Application component: application of instructional modifications for exceptional students in inclusive schools.

EDPI 344 Assessment for Instruction.
(3) (Offered through Summer Studies and Continuing Education.) Assessing student strengths, problems and needs; functions and use of different types of student assessment (traditional and alternative assessments); assessing the classroom environment; issues in assessment. Application component: application of assessment process with exceptional students, and use of results for planning and adapting instruction.

EDPI 440 Managing the Inclusive Classroom.
(3) (Offered through Continuing Education) Comprehensive approach to classroom management, including management of student learning and behavior, classroom environment, material and human resources, and teacher growth. Focus on research-based practices, including behavioral approaches, for effectively managing a classroom with diversity of students. Application component: application of classroom management principles in the field.

EDPI 441 Students with Behavior Difficulties.
(3) (Offered through Continuing Education.) Theoretical approaches and specific teaching methods appropriate to the needs of students with emotional or behavior problems, including students with attention deficit hyperactivity disorder. Multimodal team intervention approaches are emphasized. Application component: application of teaching methods with students experiencing behavior difficulties.

EDPI 442 Students with Learning Difficulties.
(3) (Offered through Continuing Education.) Commonalities and differences between students with specific learning disabilities, and related teaching approaches. Emphasis on methods, materials, and technology for teaching academic content as well as social skills. Application component: modifying and teaching content areas to students experiencing learning difficulties.

EDPI 446 Special Topics.
(3) Selected topics in the field of educating students with exceptionalities.

EDPI 450 Computers and Special Needs.
(3) (May be offered through Continuing Education.) Overview of the role and contribution of computers in relation to students with exceptionalities. Review of instructional uses of computers, applications for modifying and teaching curriculum applications for specific learning needs, assistive devices for students with sensory and physical disabilities, and resources for students and teachers.

EDPI 526 Talented and Gifted Students.
(3) (Offered through Continuing Education.) The psychology and education of exceptionally able children. Definitions, assessment, classroom adaptations, technology, educational programs and educational issues. The course combines theoretical background and practical concerns. Application component: application of teaching methods with exceptionally able students.

EDPI 527 Creativity and its Cultivation.
(3) (Offered through Continuing Education.) Recent research, theory, and educational practice concerning creativity, with special attention to creativity in students and educational settings.

EDPI 539 Field Work 1: Exceptional Students.
(3) (Restriction: Permission of Program Director required.) Supervised experience with exceptional students in an approved educational setting.
EDPI 540 Field Work 2: Exceptional Students.
(3) (Prerequisite: EDPI 539) (Restriction: Permission of Program Director required.) Supervised experience with exceptional students in an approved educational setting.

EDPI 543 Family, School and Community.
(3) (Offered through Summer Studies and Continuing Education.) Examination of family, school, community and societal influences on student growth, development and adjustment. Emphasis on family perspectives, school orientation, community services, and community collaboration. Application component: using knowledge and skills in the field.

EDPT-Ed Psych & Couns (Media)
Offered by: Educational&Counselling Psych

EDPT 200 Integrating Educational Technology in Classrooms.
(3) (Also offered through Continuing Education and Summer Studies) The course is designed to help practicing and future teachers integrate technology (e.g. web-based resources, hypermedia, digital video) in their daily teaching practices. It is a practical, hands-on course that is grounded in constructivist learning theory. The participants will learn by engaging in authentic tasks in a project-based learning environment.

EDPT 204 Educational Media 1.
(3) (Offered through Continuing Education) Educational Media 1 is the "gateway" course for educational media. It reviews audio-visual education and emphasizes the rationale for audio-visual materials in education, and the underlying principles in their design, production and effective use.

EDSL-Ed in Second Languages
Offered by: Integrated Studies in Ed

EDSL 210 First Professional Seminar.
(1) (Corequisite: EDFE 209) (Restriction: Not open to students who have taken EDSL 209 (First Year Professional Seminar)) How to observe in second language classrooms. Students will be introduced to ways of observing instructional practices and procedures and will begin to reflect on various interactional patterns between teachers and students as observed in the First Year Field Experience. Professional portfolios and professional competencies will be addressed.

EDSL 215 Effective Communication in French.
(3) (Students who place at or above the FRSL 321 French proficiency level will be exempt from EDSL 215) (Prerequisite: Placement test.) Intermediate course on effective communication in Quebec French school settings. Exposure to different professional and social situations via role playing and problem-solving and various oral and written interactions in French.

EDSL 247 Second Language Education in Aboriginal Communities.
(3) (Restriction: Limited to students enrolled in off-campus programs delivered through First Nations and Inuit Education) Issues and concerns in the learning of English or French in Aboriginal communities. Emphasis on teaching a second language to Aboriginal children.

EDSL 255 Second Professional Seminar.
(2) (Prerequisites: EDSL 210, EDFE 209 and EDSL 330) (Corequisite: EDSL 255) (Restrictions: Open to B.Ed. (TESL) students. Not open to students who have taken EDSL 259 (Second Year Professional Seminar).) The course aims to develop basic practices in planning and teaching in ESL classrooms, including microteaching and reflective analysis. Professional portfolios and professional competencies will be addressed.

EDSL 255D1 (1), EDSL 255D2 (1) Second Professional Seminar.
(Restrictions: Open to B.Ed. (TESL) students. Not open to students who have taken EDSL 259 (Second Year Professional Seminar)) (Prerequisites: EDSL 210, EDFE 209 and EDSL 330) (Students must register for both EDSL 255D1 and EDSL 255D2) (No credit will be given for this course unless both EDSL 255D1 and EDSL 255D2 are successfully completed in consecutive terms) The course aims to develop basic practices in planning and teaching in ESL classrooms, including microteaching and reflective analysis. Professional portfolios and professional competencies will be addressed.

EDSL 260 Séminaire professionnel-2e.
(1) (Corequisites: EDFE 261, EDSL 301, EDSL 444.) Analyse reflexive des pratiques d'enseignement propres à l'assistanat.

EDSL 300 Foundations of L2 Education.
(3) This introduction to the field of second language education provides an overview of the supporting disciplines (e.g., linguistics, psychology, sociology and education) and includes historical and analytical perspectives on the development of L2 teaching through an examination of approaches to L2 instruction and specific teaching methods.

EDSL 301 Étude de la langue.
(3) (Prerequisites: FREN 245, EDSL 265 or EDUM 265) (Corequisite: EDSL 444) (Restriction: Not for credit if EDSL 311 or EDEC 302 has been or is being taken) Notions de base pour l'enseignement des composantes linguistique (lexique, morphologie, syntaxe et sémantique) et discursive (de la phrase aux types de textes et de discours); apprentissage de la grammaire nouvelle; composante langue des programmes d'études.

EDSL 304 Sociolinguistics and L2 Education.
(3) (Prerequisite: LING 200 or LING 201.) (May be offered in English or French) This course introduces students to various social aspects of language, language use, and language learning by examining second language education from three interrelated perspectives: sociolinguistics, discourse, and culture. Issues range from language variation and social attitudes to conversational analysis and cross-cultural communication.

EDSL 305 L2 Learning: Classroom Settings.
(3) (Prerequisite: EDSL 300 or LING 200 or LING 201.) This course provides an introduction to theory and research in second language acquisition (SLA). It is designed to help students understand the processes, developmental patterns and factors contributing to SLA so that the students will be prepared to evaluate and develop teaching procedures in light of this understanding.

EDSL 310 Third Professional Seminar.
(3) (Prerequisite: EDSL 255.) (Corequisite: EDFE 359) (Restriction: Not open to students who have taken EDSL 309) Focus is on classroom processes such as teaching and learning strategies, lesson planning and implementation, classroom organization and management, and on developing a reflective teaching practice.

EDSL 311 Pedagogical Grammar.
(3) (Corequisite: EDSL 447) (Prerequisite: EDSL 350) (Restriction: Not for credit if EDSL 301 or EDEC 302 has been or is being taken) The course focuses on how the English language works as a system, examining it from the levels of phonology, morphology, syntax, semantics, and discourse. These aspects will be considered in relation to second language teaching and learning.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses taught only in alternate years.
Professional Practice (Stage) in Dietetics involving special prerequisites.
Indicates that departmental approval/permission must be obtained by a student prior to registration.
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Denotes courses offered by the Faculty of Arts or Faculty of Science in 2011-12.
Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
EDSL 315 Third Year Professional Seminar.
(2) (Prerequisites: EDSL 255 or EDSL 255D1/D2, and EDFE 255, EDSL 305, EDSL 330, EDSL 447, EDSL 447D1/D2.) (Corequisite: EDSL 300) (Restriction: Open only to B.Ed. TESL students who have taken EDSL 255. Not open to students who have taken or are taking EDFE 259, EDSL 309 or EDSL 310.) Classroom processes such as teaching and learning strategies, lesson planning and implementation, classroom organization and management, and developing a reflective teaching and learning practice. Professional portfolios and professional competencies will be addressed.

EDSL 320 Séminaire 3 professionnel.
(1) (Corequisites: EDSL 362 and EDSL 472) Ce séminaire professionnel porte sur l'analyse réflexive des pratiques stratégiques d'enseignement propres aux divers contextes scolaires au primaire. Ce séminaire vise également l'expérimentation de divers matériels pédagogiques et la simulation de techniques d'animation et de gestion de classe.

EDSL 330 Literacy 1: Teaching Reading in ESL.
(3) (Prerequisites: EDSL 300, EDSL 350) Examines current literacy theory and practice, focusing on the teaching of reading skills for the comprehension and appreciation of texts in various genres, formats and functions, in ESL for elementary and secondary level students. Top-down and bottom-up reading processes; cultural and general background knowledge; knowledge of language including grammar and vocabulary are addressed.

EDSL 332 Literacy 2: Teaching Writing in ESL.
(3) (Corequisites: EDSL 330) Examines current literacy theory and practice, focusing on the teaching of writing skills for the production of texts in various genres, formats and functions, in ESL for elementary and secondary level students. Based on an understanding of writing as a process, key areas include: the adaptation and development of appropriate writing activities; feedback and revision; theme- and literature-based activities; and building upon reading and oral activities.

EDSL 334 Teaching Oral Skills in ESL.
(3) (Prerequisite: LING 200 or LING 201) Application of the English sound system to practical ESL teaching situations, planning and integrating pronunciation (as well as other oral skills, such as fluency) into activities and projects, developing materials, and assessing progress.

EDSL 345 Enseignement du FLS-immersion.
(3) (Corequisites: EDSL 402 or EDUM 402) (Corequisites: EDFE 461, EDSL 420.) Ce cours examine divers cheminement retrouvés en contextes immersifs ainsi que diverses approches pédagogiques propres à l’enseignement du FLS par le biais de matières scolaires. Des recherches effectuées en contexte immersif seront également examinées par rapport au développement langagier des élèves en immersion.

EDSL 350 Essentials of English Grammar.
(3) (Restriction: Restricted to B.Ed. (TESL) students) (Restriction: This is a required course for B.Ed. TESL students. Students from other programs may be admitted at the discretion of the instructor.) Analysis of English phrases, clauses and sentences up to discourse level in connected text. Emphasis on distinguishing between grammatical form, meaning, and function, Identification, analysis and correction of common errors made by ESL learners.

EDSL 360 TESL/TFSL Practicum - Elementary.
(3) (Corequisites: EDSL 444 for TFSL students; EDSL 447 for TESL students) (Offered through Continuing Education) Supervised practice in the application of language teaching and learning theories: focus on the design and use of teaching units, the organization of communication activities, the selection and use of diagnostic and remedial materials.

EDSL 361 TESL/TFSL Practicum - Secondary.
(3) (Corequisites: EDSL 472 for TFSL students; EDSL 458 for TESL students) (Offered through Continuing Education) Supervised practice in the application of language teaching and learning theories: focus on curriculum development, and on the production of instructional, diagnostic and remedial materials.

EDSL 390 Teaching English as a Second Language in the Community.
(3) Introduction to pedagogical, program and policy contexts of teaching ESL outside the formal K - 11 school setting, including teaching children, adolescents and adults, in the private and community sectors in Canada and abroad.

EDSL 412 Assessment in TESL.
(3) (Prerequisites: EDSL 447 and EDFE 359) This course deals with the role of assessment in TESL. Students will explore the kinds of information needed to make educational decisions in second language courses, different techniques for collecting that information, and ways for interpreting it. Principles and methods for assessment with and without tests are discussed and practiced.

EDSL 415 Fourth Professional Seminar.
(3) (Prerequisite: EDSL 315) (Corequisite: EDFE 459 and EDSL 458) (Restriction: Not open to students who have taken EDSL 409) Professional competencies and final preparation of professional portfolios will be addressed. Focus is on development as a TESL professional, preparation for the workplace, and analysis, reflection, problem solving and support of actual teaching practice.

EDSL 420 Séminaire 4 professionnel.
(2) (Corequisites: EDFE 461, EDSL 345.) Ce séminaire professionnel porte sur l'analyse réflexive des pratiques stratégiques d'enseignement propres aux divers contextes scolaires au secondaire. Ce séminaire vise également l'expérimentation de divers matériels pédagogiques et la simulation de techniques d'animation et de gestion de classe.

EDSL 444 Laboratoire d'enseignement en français langue seconde.
(3) (Corequisites: EDSL 301) Entraine à l'observation et à l'analyse de situations d'enseignement du français langue seconde au primaire. Pratiques d'habiletés en situation microenseignement. Vidéoscopie et entraînement à la pratique réfléchie.

EDSL 447 Methods in TESL.
(3) (Prerequisite: EDSL 350) (Corequisite: EDSL 311) Intermediate-level skills in planning and teaching appropriate lessons, activities, and projects for ESL learners in a variety of programs at the elementary and secondary school levels.

EDSL 449 Special Topics in Second Language Teaching.
(3) Selected topics in second language teaching. Possible topics include communicative competence, interlanguage/error analysis and functional-notional approach to second language teaching.

EDSL 458 Methods in TESL.
(3) (Prerequisite: EDSL 447, EDSL 311) (Corequisites: EDSL 415 and EDFE 459) Advanced-level skills in planning appropriate lessons, activities, units and projects for ESL learners in a variety of programs at the elementary and secondary levels.

EDSL 472 Enseignement du français langue seconde-secondaire.
(3) (Prerequisites: EDSL 444, EDSL 301.) (Corequisites: EDFE 362, EDSL 320.) Le but de ce cours est de développer l'habileté à planifier des activités, des unités et des projets, dans des séquences d'enseignement, en fonction des programmes d'études : FLS, immersion et accueil. Le cours intègre les pédagogies de la communication orale et écrite de la langue seconde au secondaire.

EDSL 500 Foundations and Issues in Second Language Education.
(3) (Fall) (Restriction: Restricted to students in the Graduate Certificate in TESL.) Introduction of second language (L2) education; an overview of contributing disciplines (e.g., linguistics, psychology, sociology and education). A history of theory and various methodological approaches to L2 teaching and learning is used to promote an understanding of current theory and practice.

EDSL 505 Second Language Acquisition Applied to Classroom Contexts.
(3) (Winter) (Prerequisite: EDSL 500.) (Restriction: Restricted to students in the Graduate Certificate in TESL.) An overview of theory and research in second language acquisition, including developmental patterns, factors affecting how second languages are learned, and relevance for teachers in terms of applications to the classroom context.
EDSL 512 Grammar in Teaching English as a Second Language.
(3) (Prerequisite: EDSL 505) (Restriction: Restricted to students in the Graduate Certificate in TESL) Analysis of English grammar at phonological, morphological, syntactic, semantic, and discourse levels. Applications are made to second language teaching and learning, focusing on integrating grammar into communicative language approaches.

EDSL 515 Étude de la langue française pour enseignants.
(3) (Prerequisite: EDSL 505) Notions pour l’enseignement du français langue seconde. Composantes linguistique (lexique, morphologie, syntaxe et sémantique) et discursive (de la phrase aux types de textes et de discours); apprentissage de la grammaire nouvelle; composante langue des programmes d'études. Les demandes de deuxième langue d'enseignement et d'apprentissage axées sur l'intégration de la structure du langage dans les approches communicatives langagières.

EDTL-Education Teaching & Learning
Offered by: Integrated Studies in Ed

EDTL 500 Applications of Educational Psychology.
(3) (Winter) Implications of selected theoretical models relevant to educational practice, planning and reflecting. Overview of human development, individual and gender difference, learning styles, self-reliance and motivation. The complementary role of ancillary educational services in relation to classroom applications. All addressed through the development of professional competencies.

EDTL 506 Philosophy of Education.
(3) (Winter) An exploration of philosophical underpinnings of educational theories as they inform professional practice. Reflections on aims of education, knowledge and values, nature of schooling and curriculum, roles and responsibilities of professional educators. All addressed through the development of professional competencies.

EDTL 508 Critical Influences on Educational Praxis.
(3) Implications of intercultural/multicultural, global, environmental and social justice advances as these affect critical thinking and inform practice in the classroom. Addressed through the development of professional competencies.

EDTL 519 English Exam for Teacher Certification.
(0) (Restriction: Open to Graduate students in the M.A. in Teaching and Learning, seeking teacher certification by MELS.) Two hour exam designed to assess teacher candidates' competency in the language of instruction - MELS requirement for teacher certification in the Quebec school system. Students are permitted 4 attempts to pass this exam; it must be passed before commencing the Second Internship. Any student unsuccessful after 4 attempts must withdraw from the program.

EDUM-Education University of MTL
Offered by: Integrated Studies in Ed

EDUM 215 Test de certification en français écrit.
(0) (Restriction: prior to third Field experience) Un test de certification en français écrit pour l'enseignement. Requis pour le programme. Il est obligatoire que ce test ait été réussi avant l'inscription au troisième stage ou l'équivalent.

EDUM 245 Français écrit pour futurs enseignants.
(3) Problèmes textuels, syntaxiques, orthographiques et lexicaux. Stratégies de révision.

EDUM 262 Système éducatif - profession enseignante.
(3) (Restriction: Not open to students who have taken UdeM: ETA 1900, McGill: EDEC 247 (formerly EDEM 405) or EDSL 262) Initiation aux institutions scolaires du Québec et, au premier chef, à l'école. Initiation au rôle professionnel des enseignants. Perspectives historique et contemporaine.

EDUM 263 Apprentissage et développement.
(3) (Restriction: Not open to students who have taken UdeM: PPA 1100 or EDSL 263) Théories de l'apprentissage scolaire. L'enseignant comme médiateur des apprentissages. Milieu scolaire et croissance de 4 à 12 ans. Entrée à l'école. Facteurs d'adaptation scolaire et sociale. Éléves à besoins particuliers.

EDUM 264 Phonétique et phonologie.
(3) (Restriction: Not open to students who have taken UdeM: LNG 1400 or EDSL 264) Introduction à la phonétique et à la phonologie. Techniques d'analyse et de description.

EDUM 265 Acquisition-apprentissage-langues secondes.
(3) (Restriction: Not open to students who have taken UdeM: DID 2102, McGill: EDSL 305 or EDSL 265) Connaissance des facteurs qui influent sur l'apprentissage et l'acquisition d'une langue seconde. Historique des méthodes d’enseignement. Approche communicative. Caractéristiques des clientèles de français langue seconde.

EDUM 266 Mathématiques au primaire.
(3) (Restriction: Not open to students who have taken UdeM: DID 1500 or EDSL 266) Les mathématiques enseignées : histoire, savoirs, rapport au savoir et transposition. Arrimage entre les différents ordres d'enseignement.

EDUM 267 Didactique des arts plastiques 1.
(3) (Restriction: Not open to students who have taken UdeM: DID 2910 or EDSL 267) Expérience des arts plastiques, médias plastiques, éléments du langage plastique. Programme des arts plastiques au primaire. Élaboration, animation d'activités et évaluation des apprentissages.

EDUM 268 Intégration des TIC.
(3) (Restriction: Not open to students who have taken UdeM: PPA 2100 or EDSL 268) Développement, mise à l'essai et analyse de situations pédagogiques intégrant stratégiquement les TIC. Réflexion critique et participation à une communauté apprenante dans une perspective de développement professionnel.

EDUM 269 École et environnement social.
(3) (Restriction: Not open to students who have taken UdeM: ETA 2200 or EDSL 269) L'école comme milieu de vie et lieu d'exercice de la citoyenneté. Impacts sur les acteurs éducatifs et les disparités économiques, sociales et culturelles. Critique des politiques et pratiques pertinentes.

EDUM 270 Morphologie et syntaxe.
(3) (Restriction: Not open to students who have taken UdeM: LNG 1540 or EDSL 270) Principaux concepts et méthodes de l'analyse morphologique et syntaxique en grammaire générative tranformationnelle. Application à la structure du mot et de la phrase en français contemporain et analyse de constructions problématiques.

EDUM 271 Lexique et sémantique.
(3) (Restriction: Not open to students who have taken UdeM: LNG 1080 or EDSL 271) Types de sens : prédicats et objets sémantiques. Sens lexicaux vs grammaticaux ; notion d'unité lexicale ; lexique vs grammaire. Relations sémantiques de base (synonymie, antonymie).

EDUM 341 Littérature et Littérature Jeunesse en FLS.
(3) (Restriction: Not open to students who have taken EDSL 341) Développement de la littérature en langue seconde ; les stratégies d'enseignement et d'apprentissage de la lecture et de l'écriture ; l'exploration et l'utilisation de la littérature enfantine et de jeunesse propre à la francophonie dans divers contextes scolaires.

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[Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.]
EDUM 391 Didactique du français en accueil 1.
(3) (Prerequisite: EDSL 301) (Restriction: Not open to students who have taken EDSL 391) Contenus et démarches en didactique de l'oral et de l'écrit au secondaire en classe d'accueil et autres formules de services d'aide à la francisation. Conception d'activités et de séquences d'apprentissage. Programmes d'étude.

EDUM 392 Gestion de classe en langues secondes.

EDUM 393 Adolescent et expérience scolaire.
(3) (Restriction: Not open to students who have taken UdeM: PPA 1210 or EDSL 393) Développement psychosocial des élèves; influence des environnements sociaux; problématiques contemporaines de l'adolescence (anxiété, suicide, abandon scolaire). Relations entre enseignants - élèves et entres pairs. Aperçu de la recherche récente.

EDUM 394 Séminaire de stage-3e.
(1) (Prerequisites: EDSL 260, EDFE 261) (Corequisite: EDFM 361) (Restriction: Not open to students who have taken UdeM: EDU 3080 or EDSL 394) Analyse réflexive des pratiques d'enseignement propres au secondaire.

EDUM 402 Évaluation en français langue seconde.
(3) (Prerequisite: EDFE 361 or EDFM 361 or EDFE 362) (Restriction: Not open to students who have taken EDSL 402) Évaluation des compétences en enseignement du FLS : fonctions de l'évaluation; approches normative et critérielle; planification de situations d'évaluation authentiques; élaboration d'instruments; interprétation des résultats; modalités de consignation.

EDUM 491 Didactique des mathématiques en langues secondes.
(3) (Restriction: Not open to students who have taken UdeM: DID 3506 or EDSL 491) Problématique spécifique de l'enseignement des mathématiques à des élèves non francophones. Principaux savoirs arithmétiques et géométriques enseignés au primaire. Situations didactiques. Évaluation.

EDUM 492 Didactique des sciences-technologies.
(3) (Restriction: Not open to students who have taken UdeM: DID 2110 or EDSL 492) Apprentissages propres aux sciences et à la technologie au préscolaire et au primaire. Conception des élèves et démarche didactique. Résolution de problèmes et autres activités. Évaluation des apprentissages et du curriculum.

EDUM 493 Sciences humaines au primaire.
(3) (Restriction: Not open to students who have taken UdeM: DID 2205 or EDSL 493) Sciences humaines et culture. Nature de savoir élaboré, rapport au savoir et transposition sous forme de programme d'étude. Éducation à la citoyenneté.

EDUM 494 Didactique de l'univers social et TIC.
(3) (Restriction: Not open to students who have taken UdeM: DID 3237 or EDSL 494) Évaluation critique de logiciels et sites Internet relatifs à l'univers social. Production et diffusion de documents multimédias. Scénario d'intégration pédagogique des TIC.

EDUM 495 Recherche-résolution de problèmes.
(3) (Restriction: Not open to students who have taken UdeM: ETA 4000 or EDSL 495) Études des grands courants de la recherche actuelle en éducation comme facteurs de renouvellement des pratiques pédagogiques en classe hétérogène et de l'école dans un environnement culturel et technologique en mutation.

EDUM 496 Laboratoire de formation professionnelle.
(3) (Restriction: Not open to students who have taken UdeM: ETA 4410 or EDSL 496) Élaboration d'un projet permettant de faire la synthèse des connaissances et de les mettre en pratique dans le cadre d'une intervention planifiée en collaboration avec les divers intervenants du milieu scolaire.

EDUM 497 Problématique en éducation préscolaire.
(3) (Restriction: Not open to students who have taken UdeM: PPA 1205 or EDSL 497) Le rôle et l'évolution des services offerts à la petite enfance au Québec. Les facteurs socio-économiques, culture et familiaux qui affectent le développement du jeune enfant. La prévention auprès de l'enfant et sa famille.
Faculty of Engineering

ARCH-Architecture

Offered by: Architecture

A limited number of courses are open to students not registered in the School of Architecture. Please consult Class Schedule for further information.

ARCH 201 Communication, Behaviour and Architecture.
(6) (2-10-6) Introduction to design; development of design judgement and communication skills in a series of exercises addressing light, scale, space, form and colour in the built environment; introduction to techniques of oral and graphic presentation, including model making, photography, sketching and architectural drawing. The course is based in the studio and includes lectures, seminars and field trips.

ARCH 202 Architectural Graphics and Elements of Design.
(6) (2-10-6) (Prerequisite: ARCH 201) Introduction to architectural design; consideration of building form in relation to program, structural system, material selection, site and climate; further development of skills in model making, conventional architectural drawing, axonometric and perspective drawing, sketching and architectural rendering. The course is based in the studio and includes lectures, seminars and field trips.

ARCH 217 Freehand Drawing 1.
(1) (0-2-1) Development of skills in drawing and observation through a series of exercises based on the study of the human figure in a studio setting. Media include pencil, charcoal, conte crayon, and pen and ink.

ARCH 218 Freehand Drawing 2.
(1) (0-2-1) (Prerequisite: ARCH 217) Continuation of ARCH 217. Development of graphic skills and visual literacy through exercises in life drawing. Introduction to basic colour theory: hue, intensity/dilution, temperature and emotional power. Additional media include coloured chalk and gouache.

ARCH 240 Organization of Materials in Buildings.
(3) (2-3-4) The characteristics of basic building materials: wood, steel, masonry and concrete. How building materials are shaped into building components, and how these components are integrated into the building envelope. Problems, laboratory projects and field trips to illustrate principles.

ARCH 241 Architectural Structures.
(3) (2-1-6) Introduction to the basic concepts and forms of structures in architecture.

ARCH 242 Digital Representation.
(2) (2-0-4) (Prerequisite: ARCH 201.) This course introduces students to digital representation in architecture. Students explore applications of state-of-the-art two- and three-dimensional computer modeling software in architectural design.

ARCH 250 Architectural History 1.
(3) (3-0-6) The study of architecture in relation to landscape, urban form and culture, from Antiquity to the end of the Middle Ages.

ARCH 251 Architectural History 2.
(3) (3-0-6) (Prerequisite: ARCH 250) Overview of early 20th century architecture with emphasis on a thematic approach to buildings and cities, architects and ideologies. The lectures will examine the origins, development and impact of canonical figures and buildings of Modernism.

ARCH 303 Design and Construction 1.
(6) (2-10-6) (Prerequisite: ARCH 202) An exploration of the design of buildings. Projects emphasize the major social, technological, environmental, and symbolic aspects of the design process. Introduction to specific modelling, presentation, and documentation techniques. Discussions, readings, field trips and practical exercises.

ARCH 304 Design and Construction 2.
(6) (2-10-6) (Prerequisite: ARCH 303) Continuation of Design and Construction I with projects of increasing complexity. Projects deal with particular aspects of architectural design and/or explore approaches to design methodology. Discussions, readings, field trips and practical exercises.

ARCH 321 Freehand Drawing 3.
(1) (0-2-1) (Prerequisite: ARCH 218) Continuation of ARCH 218. Refinement of graphic skills and visual literacy through exercises in life drawing. Introduction to the materials and methods of watercolour painting.

ARCH 322 Freehand Drawing 4.
(1) (0-2-1) (Prerequisite: ARCH 321) Synthesis of ARCH 217, 218 and ARCH 321. Further refinement of graphic skills and visual literacy through exercises in life drawing. Students select and combine various media and apply them to diverse drawing and painting surfaces.

ARCH 324 Sketching School.
(1) (0-0-3) (Prerequisite: ARCH 218) (This course in the Faculty of Engineering is open only to McGill students.) An eight-day supervised field trip in the late summer to sketch places or things having specific visual characteristics. Students are required to include Sketching School I in the B.Sc.(Arch.) program.

ARCH 352 Art and Theory of House Design.
(3) (2-2-5) (Prerequisite: ARCH 202 or permission of instructor) An examination of the art and theory of the design of houses by architects who developed the form to perfection. Lectures and field trips will focus on the work of selected house architects from antiquity to the present.

ARCH 354 Architectural History 3.
(3) (3-0-6) (Prerequisites: ARCH 250 and ARCH 251) General introduction to Modern Architecture in Western Europe from the Renaissance to the end of the 19th century. The course uses a thematic approach and sources on specific ideas and works drawn particularly from Italy, France, England and Germany.

ARCH 355 Architectural History 4.
(3) (3-0-6) (Prerequisites: ARCH 250 and ARCH 251) The study of architecture and cities in the postwar period. Emphasis placed on themes and approaches to architectural history, as opposed to traditional survey.

ARCH 375 Landscape.
(2) (2-2-2) Land form, plant life, microclimate; land use and land preservation; elements and methods of landscape design.

(3) (3-0-6) (Prerequisite: ARCH 202 or permission of instructor) Exploration of the interrelationship between energy, environment and building. Topics include sustainability, assessment tools, the integrated design process, water conservation, energy conservation, renewable energy, materials and embodied energy, indoor environmental quality, environmental acoustics, and advanced building technology.

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ARCH 378 Site Usage. (3) (2-0-7) (Prerequisite: ARCH 202 or permission of instructor) The study of the creation, form and usage of the exterior and space generated in various patterns of low-rise housing. Socio-cultural aspects of patterns; exterior space as a logical extension of the living unit; social control of the use of urban and suburban land; comparative model for low-rise housing patterns.

ARCH 379 Summer Course Abroad. (3) (0-0-9) (Prerequisite: ARCH 202 or permission of instructor) (Restriction: Departmental permission required) Studies in-situ of key buildings, landscapes and urban settings; techniques of graphic documentations, analysis of physical configuration, constructional details and present use. Excursions to neighbouring sites of architectural interest.

★ARCH 383 Geometry and Architecture. (3) (2-0-7) (Prerequisite: ARCH 202 or permission of instructor) (Given alternate years, alternating with ARCH 525) Geometry in the formal structure of design. Grids, lattices, polygons and polyhedra; proportional systems. Evidence of these figures and structures in natural objects and phenomena. Graphical and physical models. Application to architecture and the human environment. Case studies.

ARCH 405 Design and Construction 3. (6) (2-10-6) (Prerequisite: ARCH 304) A structured investigation of architectural concepts; program interpretation with respect to relevant cultural, social and environmental contexts; applications of appropriate formal languages and building technologies in integrated proposals for a variety of building forms.

ARCH 406 Design and Construction 4. (6) (2-10-6) (Prerequisite: ARCH 405) A detailed study and comprehensive development of architectural proposals for complex building types and site conditions; the exploration of coherent initial concepts with respect to programmatic requirements, image and form; subsequent elaboration leading to meaningful and technologically viable designs for the built environment.

ARCH 410 Design and Construction 5. (6) A study of the function and structure of the urban environment, including surveys of selected urban areas by recording and analysing specific environmental factors. Architectural and urban design with reference to their social implications. Urban renewal and rehabilitation by means of systematic design methods. Techniques of visual communication including documentary film-making.

ARCH 447 Lighting. (2) (2-2-2) (Prerequisite: ARCH 304) Concepts of natural and artificial lighting in architecture and urban design.

ARCH 451 Building Regulations and Safety. (2) (2-2-2) (Prerequisite: ARCH 405) The study of building codes with specific emphasis on the National Building and National Fire Codes of Canada. Examples of existing buildings with assignments to illustrate regulations. Development of a systematic approach to the implementation of codes during the preliminary design stage of an architectural project.

ARCH 461 Freehand Drawing and Sketching. (1) (0-3-0) (Prerequisite: ARCH 324) Drawing and sketching in pencil, charcoal and other media both in the studio and out-of-doors.

ARCH 471 Computer-Aided Building Design. (2) (2-2-2) (Prerequisite: ARCH 202 or equivalent) An introduction to selected applications of interactive computing in architecture; emphasis on development of simple algorithms in graphic, as well as non-graphic, modes in hands-on situations in the lab; field trips to several in use installations.

ARCH 490 Selected Topics in Design. (2) (2-0-4) (Prerequisite: ARCH 202 or permission of instructor) A course to allow the introduction of special topics in related areas of design.

ARCH 512 Architectural Modelling. (3) (2-1-6) (Prerequisites: ARCH 304 and ARCH 471 or equivalent.) (Restrictions: Not open to students who have taken ARCH 364.) Architectural modelling using advanced applications in digital media. Topics include: 3-D modelling and rendering; image editing; digital animation; hypertext and the World Wide Web; issues of representation and methodology; comparison of publishing applications. Projects complement design studio courses and independent studies that are student or instructor initiated.

ARCH 514 Community Design Workshop. (4) (4-20-15) (Prerequisite: ARCH 202.) A design-build studio that engages community-based projects with identified needs and a requirement for intervention on real sites. Exploration of selected problems in architectural design and develop solutions from first concept to implementation on-site.

ARCH 515 Sustainable Design. (3) (3-0-6) (Prerequisite: ARCH 377 or permission of instructor.) This course will address sustainable design theory and applications in the built environment with students from a variety of fields (architecture, urban planning, engineering, sociology, environmental studies, economics, international studies). Architecture will provide the focus for environmental, socio-cultural and economic issues.

ARCH 517 Sustainable Residential Development. (3) (3-0-6) (Prerequisite: ARCH 377 or equivalent) Design strategies of sustainable residential environments at the community and the unit levels. Historic references, siting principles, high density, healthy developments, green homes, urban renewal, circulation and parking, open spaces and implementation approaches.

ARCH 519 Field Course Abroad. (3) (Prerequisite: ARCH 304 or permission of instructor) (Restrictions: Limited enrolment; departmental permission required) (Note: Excursions to neighbouring sites of architectural interest) Advanced and comprehensive studies in-situ of key buildings, landscapes and urban settings; techniques of graphic documentations, analysis of physical configuration, constructional details and present use.

★ARCH 520 Montreal: Urban Morphology. (3) (2-1-6) (Prerequisite: ARCH 251) (Given alternate years, alternating with ARCH 521) Historical, geographical, demographical, and regional evolution of the metropolis of Montreal. Topics include: important quarters, the Montreal urban grid, industrialization, reform movements, geographical diversity, urban culture, local building techniques and materials. Basic concepts of urban morphology and their relationships to the contemporary urban context will be explored.

★ARCH 521 Structure of Cities. (3) (2-0-7) (Prerequisite: ARCH 202 or permission of instructor) (Given alternate years, alternating with ARCH 520) Nature, pattern and life of modern cities. Urban networks, special areas, problems and prospects.

ARCH 522 History of Domestic Architecture in Quebec. (3) (2-0-7) (Prerequisite: ARCH 251) (Restriction: Departmental permission required) The architecture of houses in Quebec from 1650 to the present. Distinguished buildings are reviewed from the point of view of form, style, sitting and material, as influenced by climate, culture and architectural antecedents in France, England and the United States. The course material is presented through alternating bi-weekly lectures and seminars.

★ARCH 523 Significant Texts and Buildings. (3) (2-0-7) (Prerequisite: ARCH 251) (Given alternate years, alternating with ARCH 524) (Restriction: Departmental permission required) Critical study of significant architectural thought since 1750 as it has been expressed in buildings and texts (treatises, manifestos, criticisms). A specific theme will be addressed every year to allow in-depth interpretations of the material presented and discussed.

★ARCH 524 Critical Design Strategies. (3) This course has been renumbered to ARCH 626.

★ARCH 525 Seminar on Analysis and Theory. (3) (2-0-7) (Prerequisite: ARCH 202 or permission of instructor) (Given alternate years, alternating with ARCH 383) (Restriction: Departmental permission required) Analysis and evaluation of significant architectural projects with reference to contemporary architectural theories.
ARCH 526 Philosophy of Structure.
(3) (2-0-7) (Prerequisite: ARCH 202 or permission of Instructor) (Restriction: Not open to students who have taken ARCH 374) Philosophy of Structure aims to investigate structure in its broadest sense. The course is divided into two halves; the first one gives an overview of the development of theoretical structural frameworks such as mathematics and geometry, while the second one highlights physical structures constructed by nature (geology, turbulence), man or animals.

ARCH 527 Civic Design.
(3) (2-0-7) (Prerequisite: ARCH 378) The elements of form in buildings and their sitting design in the urban setting.

ARCH 528 History of Housing.
(3) (2-0-7) (Prerequisite: ARCH 251 or permission of instructor) Indigenous housing both transient and permanent, from the standpoint of individual structure and pattern of settlements. The principal historic examples of houses including housing in the age of industrial revolution and contemporary housing.

ARCH 529 Housing Theory.
(3) (2-0-7) (Prerequisite: ARCH 528 or permission of instructor) A review of environmental alternatives in housing; contemporary housing and the physical and sociological determinants that shape it; Canadian housing.

ARCH 531 Architectural Intentions Vitruvius - Renaissance.
(3) (2-0-7) (Prerequisite: ARCH 251) Architectural intentions embodied in buildings and writings of architects from antiquity to the Renaissance. Special emphasis is placed on the cultural connections of architecture to science and philosophy.

ARCH 532 Origins of Modern Architecture.
(3) (2-0-7) (Prerequisite: ARCH 251) Examination of architectural intentions (theory and practice) in the European context (especially France, Italy and England), during the crucial period that marks the beginning of the modern era.

ARCH 533 New Approaches to Architectural History.
(3) (2-0-7) (Prerequisite: ARCH 251 or permission of instructor) (Restriction: Departmental permission required) An exploration of the aims, tools, and methods of Architectural History as a discipline; the use of primary sources from the Canadian Centre for Architecture and other archives.

ARCH 534 Architectural Archives.
(3) (3-0-6) (Prerequisites: ARCH 250 and ARCH 251 or equivalent.) (Restriction: Open only to architecture students.) Role of archives in architectural culture. Methods of development, documentation and communication. Formats of architectural representation. Problems inherent in the creation and preservation of architectural records, and access to them. Case studies based on 19th and 20th century archives in the John Bland Canadian Architecture Collection, and other collections.

ARCH 535 History of Architecture in Canada.
(3) (2-0-7) (Prerequisite: ARCH 251 or permission of instructor.) (Restriction: Not open to students who have taken ARCH 372) (Given alternate years, alternating with ARCH 536.) French, British and American influences in the history of Canadian architecture, with particular emphasis on the Eastern Provinces. Site visits and case studies.

ARCH 536 Heritage Conservation.
(3) (3-3-3) (Given alternate years, alternating with ARCH 535) (Site visits and case studies.) (Prerequisite: ARCH 251 or permission of instructor.) Historic attitudes and terminologies of Conservation; historic research techniques; Restoration technology of building materials and principles of interior design in the 19th and 20th century; current preservation planning.

ARCH 540 Selected Topics in Architecture 1.
(3) (2-0-7) A course to allow the introduction of new topics in Architecture as needs arise, by regular and visiting staff.

ARCH 541 Selected Topics in Architecture 2.
(3) (2-0-7) A course to allow the introduction of new topics in Architecture as needs arise, by regular and visiting staff.

ARCH 550 Urban Planning and Development.
(3) (3-0-6) (Prerequisite: B.Sc.(Arch.) or permission of instructor) (Restriction: Not normally open to Urban Planning students) A survey of municipal, regional and provincial actions to guide urban development in Canada, with a particular emphasis on Montreal and Quebec. It also introduces students to concepts in real-estate development and highlights the relationship between developers and planners.

ARCH 554 Mechanical Services.
(2) (2-0-7) (Prerequisite: ARCH 405 or permission of instructor) Problems encountered in providing mechanical services in buildings. Physiological and environmental aspects of heat, ventilation and air conditions, estimation of heating and cooling loads and selection and specification of equipment. Sprinkler systems and plumbing. Construction problems produced by installation of this equipment.

ARCH 555 Environmental Acoustics.
(2) (2-0-7) (Prerequisite: ARCH 405 or permission of instructor) Acoustics in architectural design, and in environmental control of buildings. Acoustical requirements in the design of auditoria such as theatres, lecture halls, opera houses, concert halls, churches, motion picture theatres, studios. Principles of noise and vibration control, sound insulating in building construction. Practical noise control in various types of buildings.

ARCH 561 Affordable Housing Seminar 1.
(3) (2-0-7) (Prerequisite: Undergraduate students: permission of instructor) (Restriction: Not open to students who have taken ARCH 630.) Issues affecting housing delivery systems. Site selection; dwelling forms and prototypes; interior design construction methods; products and utilities; land subdivision; roads, pathways and infrastructure; open spaces; infill housing; selected built case studies.

ARCH 562 Affordable Housing Seminar 2.
(3) (2-0-7) (Prerequisite: ARCH 561. Undergraduate students: permission of instructor.) (Restriction: Not open to students who have taken ARCH 631.) Ideas and built prototypes of new paradigms in residential architecture. Adaptability; net-zero energy dwellings; prefabrication; recycling; narrow-front; green roofs; design for reduced mobility and affordability.

ARCH 564 Design for Development.
(3) (3-0-6) (Prerequisite: Permission of instructor) Designing for sustainable development to meet the Millennium and its new environmental goals. Approaches, strategies and projects that meet these goals in areas of economic empowerment, food security, gender equity, health and sanitation, and shelter sectors.

ARCH 566 Cultural Landscapes Seminar.
(3) (3-0-6) Overview of cultural landscapes studies, methodologies, and resources. Comparative studies of the connection between people, place, and artifact systems through a critical examination of architecture, regional context, and material culture. Examination of precedents for the interpretation of cultural landscapes by architects, ethnologists, anthropologists, folklorists, historians, writers, filmmakers, photographers, and artists.
BMDE-Biomedical Engineering
Offered by: Biomedical Engineering

BMDE 500D1 (1.5), BMDE 500D2 (1.5) Seminars in Biomedical Engineering.
(Students must register for both BMDE 500D1 and BMDE 500D2. (No credit will be given for this course unless both BMDE 500D1 and BMDE 500D2 are successfully completed in consecutive terms)

BMDE 501 Selected Topics in Biomedical Engineering.
(3) (3-0-6) An overview of how techniques from engineering and the physical sciences are applied to the study of selected physiological systems and biological signals. Using specific biological examples, systems will be studied using: signal or finite-element analysis, system and identification, modelling and simulation, computer control of experiments and data acquisition.

BMDE 502 BME Modelling and Identification.
(3) (3-0-6) (Prerequisites: Undergraduate basic statistics and: either BMDE 519, or Signals and Systems (e.g., ECSE 303 & ECSE 304) or equivalent) Methodologies in systems or distributed multidimensional processes. System themes include parametric vs. non-parametric system representations; linear/non-linear; noise, transients and time variation; mapping from continuous to discrete models; and relevant identification approaches in continuous and discrete time formulations.

BMDE 503 Biomedical Instrumentation.
(3) (3-0-6) (Prerequisite: Experience with differential equations, in particular Laplace Transforms and complex numbers (e.g. MATH 263 or MATH 381 or equivalent) or permission of instructor.) The principles and practice of making biological measurements in the laboratory, including theory of linear systems, data sampling, computer interfaces and electronic circuit design.

BMDE 504 Biomaterials and Bioperformance.
(3) (3-0-6) (Restriction: graduate and final-year undergraduate students from physical, biological and medical science, and engineering.) Biological and synthetic biomaterials, medical devices, and the issues related to their bioperformance. The physicochemical characteristics of biomaterials in relation to their biocompatibility and sterilization.

BMDE 505 Cell and Tissue Engineering.
(3) (3-0-6) (1.5 hours lecture/1.5 hours seminar per week) (Restriction: graduate and final year undergraduate students from physical, biological, and medical science, and engineering.) Application of the principles of engineering, physical, and biological sciences to modify and create cells and tissues for therapeutic applications will be discussed, as well as the industrial perspective and related ethical issues.

BMDE 506 Molecular Biology Techniques.
(3) (1-5-3) (Prerequisites: MATH 222, BIOL 200 or BIOL 201, CHEM 212 or CHEM 213 or PHYS 253) (Restrictions: Limited to 18 students. Calculus required, physics or physical chemistry (thermodynamics, statistical mechanics) preferred. Primarily for graduate students or advanced undergraduate students in the physical sciences who are interested in learning molecular biology techniques. Preference given to graduate students in Biomedical Engineering and Physics. Students who have completed BIOC 300 or MIMM 366 are not eligible.) Introduction to major techniques of molecular biology for physical scientists.

BMDE 508 Introduction to Micro and Nano-Bioengineering.
(3) (3-0-6) (This course is intended for graduate and advanced undergraduate students having a biological/medical background or an engineering, physical sciences background. Engineering students enrolled in the Minor in Biomedical Engineering, or Honours in Electrical Engineering and Honours in Mechanical Engineering, should be particularly interested.) (Prerequisite: Permission of instructor) The micro and nanotechnologies that drive and support the miniaturization and parallelization of techniques for life sciences research, including different inventions, designs and engineering approaches that lead to new tools and methods for the life sciences - while transforming them - and help advance our knowledge of life.

BMDE 509 Quantitative Analysis and Modelling of Cellular Processes.
(3) (3-0-6) (Pre- or co-requisites: MATH 222, MATH 223, BMDE 519) (Restriction: Not open to students who have taken PHGY 298 or PHGY 311.) Quantitative models for key intra- and inter-cellular processes. Key mathematical concepts: stochastic differential equations, Markov models, Gibbs free energy, and Fick's Law. Biological systems: neurons, networks of bacteria, and genetic regulatory systems. Emphasis on the design of quantitative experiments and data analysis.

BMDE 519 Biomedical Signals and Systems.
(3) (3-0-6) (Prerequisites: Satisfactory standing in U3 Honours Physiology, or U3 Major in Physiology; or U3 Major Physiology-Mathematics; or permission of instructor.) An introduction to the theoretical framework, experimental techniques and analysis procedures available for the quantitative analysis of physiological systems and signals. Lectures plus laboratory work using the Biomedical Engineering computer system. Topics include: amplitude and frequency structure of signals, filtering, sampling, correlation functions, time and frequency-domain descriptions of systems.

CHEE-Chemical Engineering
Offered by: Chemical Engineering

CHEE 200 Introduction to Chemical Engineering.
(4) (3-1-8) (Restrictions: students with DCS in PAS, HS or equivalent) Introduction to the design of industrial processes. Survey of unit operations, and systems of units. Elementary material balances, first and second laws of thermodynamics, use of property tables and charts, steady flow processes, heat engines, refrigeration cycles. Relationships between thermodynamic properties, property estimation techniques. Laboratory and design exercise.

CHEE 204 Chemical Manufacturing Processes.
(3) (3-2-4) (Prerequisite: CHEE 200) Material and energy balances in chemical processes. Problem solving in the design of separation processes (evaporation, crystallization), reactor design, process control, and environmental applications.

CHEE 220 Chemical Engineering Thermodynamics.
(3) (3-1-5) (Prerequisite: CHEE 200) Application of thermodynamic equilibrium; free energy and equilibrium; phase rule; chemical reaction equilibrium for homogenous and multicomponent/multiphase systems. Application to the design of binary distillation. Laboratory exercise.

CHEE 220 Environmental Aspects of Technology.
(3) (3-0-6) The impact of urbanization and technology on the environment. Topics include urbanization: causes, effects, land use regulations; transportation technology and environmental implications; environmental impact of energy conversions; energy policy alternatives; formulation of energy and environmental policy; air pollution: sources, effects, control; water pollution: sources, effects, control.

CHEE 291 Instrumental Measurement Laboratory.
(4) (2-5-5) Elements of statistical analysis associated with instrumental measurements. Principles of operation and calibration of selected measuring instruments. Principles of modern data acquisition and processing. Introduction to instrument system selection in chemical engineering.

CHEE 310 Physical Chemistry for Engineers.
(3) (3-1-5) (Prerequisite: CHEE 220 or MIMM 212.) (Restriction: Not open to students having taken CHEM 233.) Introduction to statistical thermodynamics, chemical kinetics, surface and colloid chemistry, spectroscopy, and electrochemistry from an engineering viewpoint. Topics emphasize applications of physical chemistry for chemical engineers.

CHEE 314 Fluid Mechanics.
(4) (3-3-6) (Prerequisite: CHEE 204.) (Corequisite: MATH 264.) Fluid properties; dimensional analysis; drag; packed/fluidized beds; macroscopic energy balances; Bernoulli’s equation and linear momentum theorem; flowmeters; pipeline systems, non-Newtonian fluids; microscopic balances leading to continuity and Navier-Stokes equations; boundary layer approximation; turbulence. Laboratory exercises.
CHEE 315 Heat and Mass Transfer.  
(4) (3-2-7) (Prerequisite: CHEE 314) Transport of heat and mass by diffusion and convection; transport of heat by radiation; convective mass transfer; drying; absorption; mathematical formulation of problems and equipment design for heat and mass transfer; laboratory exercises.

CHEE 340 Process Modelling.  
(3) (3-1-5) (Prerequisites: MATH 263, MATH 264, CHEE 314) Principles of mathematical modelling in chemical engineering: problem formulation, solution, discrete systems; difference and difference-differential equations, methods of solution; understanding system behaviour, optimization.

CHEE 351 Separation Processes.  
(3) (3-0-6) (Prerequisites: CHEE 204, CHEE 220. Corequisites: CHEE 315.) Concepts underlying separation processes. Equilibrium-based processes with staging and continuous contacting, distillation, evaporation, liquid-liquid extraction, leaching. Introduction to membrane based separations.

CHEE 360 Technical Paper 1.  
(1) (0-0-3) A technical paper prepared according to instructions issued by the Department.

CHEE 363 Projects Chemical Engineering 1.  
(2) (1-0-5) (Prerequisite: CHEE 200 (A “D” grade is acceptable for prerequisite purposes only)) Projects on social or technical aspects of chemical engineering practice. Students must suggest their own projects to be approved and supervised by a member of the departmental staff. Students may work in groups.

CHEE 370 Elements of Biotechnology.  
(3) (3-1-5) (Prerequisite: CHEM 212) Enzyme kinetics; proteins, carbohydrates and other biochemicals; industrially significant microbes; introduction to genetic engineering, cell structure and metabolism; laboratory exercises.

CHEE 380 Materials Science.  
(3) (3-1-5) Structure/property relationship for metals, ceramics, polymers and composite materials. Atomic and molecular structure, bonds, electronic band structure and semi-conductors. Order in solids: crystal structure, disorders, solid phases. Mechanical properties and fracture, physico-chemical properties, design. Laboratory exercises.

CHEE 392 Project Laboratory 1.  
(4) (3-6-3) (Prerequisite: CHEE 291) Planning for the solution of experimental problems; design of experiments for logical and statistical interpretation; statistical analysis of experimental data; effective work in groups; selected laboratory exercises.

CHEE 393 Project Laboratory 2.  
(5) (3-10-2) (Prerequisite: CHEE 392) Student groups execute and report on experimental projects.

CHEE 423 Chemical Reaction Engineering.  

CHEE 430 Technology Impact Assessment.  
(3) (3-1-5) (Restriction: final year students by permission of instructor) The power of technology to shape man’s physical, economic and social environment: effects of technological transitions on culture and ecology; (TIA) methodologies, public participation, engineering contributions, regulations; implications of TIA on social and economic development.

(3) (3-0-6) (Corequisite: CHEE 423) Characterization of wood, pulp and paper. Flowsheets of basic pulping processes. Applications of thermodynamics, fluid mechanics, heat and mass transfer, and reaction engineering principles in the pulp and paper processes.

CHEE 453 Process Design.  
(4) (3-1-8) (Prerequisites: CHEE 315; CHEE 351) Analysis of design alternatives. Structure of process design systems, degrees of freedom, information flow. Computer-aided process and plant design programs, physical properties, specifications, recycle convergence, optimization, applications, economics. Safety, environmental control in plant design.

CHEE 455 Process Control.  
(4) (3-2-7) (Prerequisites: CHEE 315; CHEE 351; CHEE 423) Dynamic modelling of processes, transfer functions, first and higher-order systems, dead-time, open and closed loop responses, empirical models, stability, feedback control, controller tuning, transient response, frequency response, feedforward and ratio control, introduction to computer control, sampling, discrete models, Z-transform, introduction to multivariable control. Laboratory exercises.

CHEE 456 Design Project 1.  
(2) (2-1-3) (Corequisites: CHEE 393, CHEE 453 and CHEE 340) (Restriction: Must be taken in the semester preceding CHEE 457.) Introduction to a process design and economic evaluation project, including environmental and safety aspects, for a major industrial operation. Students work in small groups under an experienced plant design supervisor.

CHEE 457 Design Project 2.  
(5) (2-2-11) (Prerequisite: CHEE 456.) (Restriction: Must be taken in the semester following CHEE 456.) A process plant design and economic evaluation, including environmental and safety aspects, for a major industrial operation. Students work in small groups under an experienced plant design supervisor. Plant visit.

CHEE 458 Computer Applications.  
(3) (3-3-3) (Prerequisites: COMP 208 and CHEE 393) Use of computers and software as problem solving aids in chemical engineering. Lectures on software engineering, computer architectures, and multitasking. In laboratory work, groups of students will produce software to be used and maintained by others.

CHEE 462 Technical Paper 2.  
(1) (0-0-3) (Prerequisite: CHEE 360) A technical paper prepared according to instructions issued by the Department.

CHEE 464 Projects Chemical Engineering 2.  
(2) (1-0-5) (Prerequisite: CHEE 315; CHEE 351) Projects on social or technical aspects of chemical engineering practice. Students must suggest their own projects to be approved and supervised by a member of the staff. Students may work in groups.

CHEE 474 Biochemical Engineering.  
(3) (3-0-6) (Prerequisite: CHEE 370.) Bioreactor design for biotechnology and environmental applications; microbial growth kinetics; application of transport phenomena and selected chemical engineering unit operations. Bioreactor instrumentation and performance optimization. Air and media sterilization processes. Selected operations of downstream processing and product recovery.

CHEE 484 Materials Engineering.  
(3) (3-1-5) (Prerequisites: CHEE 315, CHEE 380) Processes for forming and producing engineering materials such as amorphous, semicrystalline, textured and crystal-oriented substances and composites. Effect of processing variables on the properties of the finished article. Process of blending and alloying. Shaping and joining operations. Vessel equipment
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(ENGINEERING) CHEE-CHEMICAL ENGINEERING

CHEE 494 Research Project and Seminar 1. (3) (1-6-2) (Prerequisite: CHEE 393) Independent study and experimental work on a topic chosen by consultation between the student and Departmental staff.

CHEE 494D1 (1.5), CHEE 494D2 (1.5) Research Project and Seminar 1. (Students must register for both CHEE 494D1 and CHEE 494D2.) (No credit will be given for this course unless both CHEE 494D1 and CHEE 494D2 are successfully completed in consecutive terms) (CHEE 494D1 and CHEE 494D2 together are equivalent to CHEE 494) Independent study and experimental work on a topic chosen by consultation between the student and Departmental Staff.

CHEE 495 Research Project and Seminar 2. (4) (1-9-2) (Prerequisite: CHEE 393) Independent study and experimental work on a topic chosen by consultation between the student and the Departmental staff.

CHEE 495D1 (2), CHEE 495D2 (2) Research Project and Seminar 2. (Students must register for both CHEE 495D1 and CHEE 495D2.) (No credit will be given for this course unless both CHEE 495D1 and CHEE 495D2 are successfully completed in consecutive terms) (CHEE 495D1 and CHEE 495D2 together are equivalent to CHEE 495) Independent study and experimental work on a topic chosen by consultation between the student and the Departmental staff.

CHEE 496 Environmental Research Project. (3) (1-6-2) (Prerequisite: CHEE 393 or permission of instructor.) Independent study and experimental work on an environmental topic chosen by consultation between the student and Departmental staff.

CHEE 496D1 (1.5), CHEE 496D2 (1.5) Environmental Research Project. (Students must register for both CHEE 496D1 and CHEE 496D2.) (No credit will be given for this course unless both CHEE 496D1 and CHEE 496D2 are successfully completed in consecutive terms) (CHEE 496D1 and CHEE 496D2 together are equivalent to CHEE 496) Independent study and experimental work on an environmental topic chosen by consultation between the student and Departmental staff.

CHEE 498 Industrial Air Pollution Control. (3) (3-0-6) (Prerequisite: CHEE 314 or MECH 331 or equivalent.) Basic principles of human physiology. Applications of general balance equations and control theory to systems physiology. The course will cover: circulatory physiology, nervous system physiology, renal physiology and the musculoskeletal system.

CHEE 562 Engineering Principles in Physiological Systems. (3) (3-1-5) (Prerequisites: MATH 263 or MATH 315, CHEE 370 or BIOL 112 or equivalent, or permission of the instructor) Basic aspects of human physiology. Applications of general balance equations and control theory to systems physiology. The course will cover: circulatory physiology, nervous system physiology, renal physiology and the musculoskeletal system.

CHEE 563 Biofluids and Cardiovascular Mechanics. (3) (3-0-6) (Prerequisites: CHEE 314 or MECH 331 or permission of instructor.) (Restriction: Not open to students who have taken MECH 563.) Basic principles of circulation including vascular fluid and solid mechanics, modelling techniques, clinical and experimental methods and the design of cardiovascular devices.

CHEE 571 Small Computer Applications: Chemical Engineering. (3) (3-0-6) (Prerequisite: CHEE 458 or permission of the instructor.) The use of small computers employing a high level language for data acquisition and the control of chemical processes. Real-time system characteristics and requirements, analog to digital, digital to analog conversions and computer control loops are examined. Block level simulation.

CHEE 582 Polymer Science & Engineering. (3) (3-0-6) (Prerequisite: CHEE 314 or equivalent.) Application of engineering fundamentals to the preparation and processing of polymers emphasizing the relationship between polymer structure and properties. Topics include: polymer synthesis techniques, characterization of molecular weight, crystallinity, glass transition, phase behaviour, mechanical properties, visco-elasticity, rheology, and polymer processing for use in blends and composite materials.

CHEE 584 Polymer Processing. (3) (3-0-6) (Corequisite: CHEE 215 or MIME 356 or equivalent.) Survey of polymer processing operations with emphasis on the application of polymer rheology and transport phenomena to predict performance, including polymer rheology and constitutive equations, mixing, extrusion, injection molding, coating flows, fiber spinning, film blowing, blow molding, compression molding, thermoforming and composites processing.


CHEE 591 Environmental Bioremediation. (3) (3-0-6) The presence and role of microorganisms in the environment, the role of microbes in environmental remediation either through natural or human-mediated processes, the application of microbes in pollution control and the monitoring of environmental pollutants.

CHEE 592 Industrial Air Pollution Control. (3) (3-0-6) (Prerequisite: CHEE 314 or permission of instructor.) (Restriction: Not open to students who have taken CHEE 472.) Air pollution effects, control laws and regulations, measurements, emission estimates, meteorology for air pollution control engineers, dispersion models, nature of particulate pollutants, control of primary particulates, control of volatile organic compounds, sulfur oxides and nitrogen oxides; air pollutants and global climate.

CHEE 593 Industrial Water Pollution Control. (3) (3-1-5) (Prerequisite: CHEE 314 or equivalent.) (Restriction: Not open to students who have taken CHEE 471.) Wastewater constituents of concern; legislation pertinent to wastewater treatment; wastewater sampling and analysis techniques; process analysis and selection; physical, chemical and biological processes; advanced wastewater treatment methods; integration of sciences and engineering principles to design wastewater treatment processes.
CIVE 202 Construction Materials.
(4) (4-2-6) (Prerequisite: CIVE 200) Classification of materials; atomic bonds; phase diagrams; elementary crystallography, imperfections and their relationship to mechanical behaviour; engineering properties and uses of ferrous and non-ferrous metals, ceramics, cement, concrete, timber and timber products, polymers, composites; smart materials and systems; electrochemical reactions and corrosion, prevention and protection; environmental influences; group laboratory projects.

CIVE 203 Solid Mechanics Laboratory.
(1)

CIVE 205 Statics.
(3) (3-2-4) Systems of forces and couples, resultants, equilibrium. Trusses, frames and beams, reactions, shear forces, bending moments. Centroids, centres of gravity, distributed forces, moments of inertia. Friction, limiting equilibrium, screws, belts.

CIVE 206 Dynamics.
(3) (3-2-4) (Prerequisite: CIVE 205.) (Corequisites: MATH 262, MATH 263.) Kinematics and kinetics of particles, systems, and rigid bodies; mass-acceleration, work-energy, impulse-momentum. Moving coordinate systems. Lagrange’s equations. Vibrations and waves.

CIVE 207 Solid Mechanics.
(4) (4-2-6) (Prerequisites: CIVE 205 (a D grade is acceptable for prerequisite purposes) or MECH 210 (under special circumstances, the Department may permit this course to be taken as a corequisite) or equivalent) (Four laboratory sessions and weekly tutorials) Stress-strain relationships; elastic and inelastic behaviour; performance criteria. Elementary and compound stress states, Mohr’s circle. Shear strains, torsion. Bending and shear stresses in flexural members. Deflections of beams. Statically indeterminate systems under flexural and axial loads. Columns. Dynamic loading.

CIVE 208 Civil Engineering System Analysis.
(3) (3-2-4) (Prerequisite: COMP 208.) (Corequisite: MATH 264.) Introduction to civil engineering systems; system modelling process; systems approach and optimization techniques; application of linear programming; simplex method; duality theory; sensitivity analysis; transportation problem; assignment problem; network analysis including critical path method; integer linear programming method.

CIVE 210 Surveying.
(2) (Prerequisite: MECH 289 (formerly MECH 290)) The construction and use of modern survey instruments; transit, level, etc.; linear and angular measurements and errors; horizontal and vertical curves; error analysis, significance of figures; use of computers and software; recent developments.

CIVE 225 Environmental Engineering.
(4) (4-2-6) (Prerequisite: CIVE 290.) (Corequisite: MATH 263.) Introduction to environmental chemistry; mass balance analyses in engineered and natural systems; water, soil and air pollution characterization and control; water quality parameters; drinking water and wastewater treatment technologies; global climate change; possible causes and effects; risk assessment for pollutant exposure; solid- and hazardous-waste management.

CIVE 281 Analytical Mechanics.

CIVE 284 Structural Engineering Basics.
(4) (3-3-6) (Restriction: Not open to students who have taken CIVE 205 and CIVE 293.) Basic principles of statics; force systems; trusses; centroids and second moment of areas; stress and strain; beams; shearing and bending stresses; deflections; combined stresses; columns.

CIVE 290 Thermodynamics and Heat Transfer.
(3) (3-2-4) Macroscopic vs. microscopic viewpoint; states and processes; energy conservation and transformation. Phase equilibrium; equations of state; thermodynamic properties; work; heat; First Law of thermodynamics; internal energy; enthalpy; specific heat; thermodynamic processes; reversibility; polytrophic processes, applications of First Law; Second Law; entropy; introduction to heat transfer.

CIVE 302 Probabilistic Systems.
(3) (3-2-4) (Prerequisites: MATH 262, COMP 208 (a D grade is acceptable for prerequisite purposes)) An introduction to probability and statistics with applications to Civil Engineering design. Descriptive statistics, common probability models, statistical estimation, regression and correlation, acceptance sampling.

CIVE 311 Geotechnical Mechanics.
(4) (4-2-6) (Prerequisite: CIVE 207) Identification and classification of soils; physical and engineering properties; principle of effective stress; permeability, compressibility, shear strength, stress-strain characteristics; groundwater flow and seepage; earth pressure and retaining structures; stress distributions in soils; settlement; bearing capacity of shallow foundations.

CIVE 317 Structural Engineering 1.
(3) (3-2-4) (Prerequisites: CIVE 202, CIVE 207 and MECH 289 (formerly MECH 290)) The design process; loads, sources, classifications, load factors, combinations; limit states design; structural systems and foundations; choice of materials; virtual work and energy methods; statical and kinematic indeterminacy; slope deflection method, introduction to matrix methods; analysis of indeterminate systems; force envelopes.
CIVE 318 Structural Engineering 2.
(3) (3-2-4) (Prerequisite: CIVE 317) Durability and service life; fire resistance and protection; steel, reinforced concrete and timber; building components in tension, compression, bending and shear; slenderness, global and local instability; axial load and moment interaction; curvature, deflection, ductility; connections; bond and anchorage of reinforcement; simple footings.

CIVE 319 Transportation Engineering.
(3) (3-1-5) (Prerequisites: CIVE 208 and COMP 208.)
(Corequisite: CIVE 302) Introduction to design and operating principles and procedures for surface transportation systems, including vehicle motion and performance, pavements, geometric design of roadbeds, vehicle flow and capacity, traffic control, demand, supply and cost concepts.

CIVE 320 Numerical Methods.
(4) (4-2-6) (Prerequisites: COMP 208, MATH 264.)
Numerical procedures applicable to civil engineering problems: integration, differentiation, solution of initial-value problems, solving linear and non-linear systems of equations, boundary-value problems for ordinary-differential equations, and for partial-differential equations.

CIVE 322 Hydrology and Water Resources.

CIVE 324 Construction Project Management.
(3) (3-1-5) (Prerequisites: MIME 310 and CIVE 208)
Construction fundamentals; procedures and responsibilities; tender documents, specifications, proposals, contracts; construction project organization, estimating, planning, scheduling, controlling; liability, claims procedures, arbitration; job safety; security and loss control; case histories, site visits.

CIVE 326 Fluids & Hydraulics Laboratory.
(1) (0-1-2) (Restriction: Not open to students who have taken CIVE 327) Laboratory experiments in fluid mechanics and hydraulics.

CIVE 327 Fluid Mechanics and Hydraulics.
(4) (4-2-6) (Prerequisites: CIVE 206, MATH 264.) Fluid properties; hydrostatics; dimensional analysis and similitude, fluxes of mass, momentum and energy; Bemoulli’s equation; method of control volume; streamline curvature; potential flow and boundary layers; pipe flow, hydraulic machinery and introduction to open-channel flow.

CIVE 385 Structural Steel and Timber Design.
(3) (3-1-5) (Prerequisite: CIVE 284.) (Corequisite: ARCH 240) Structural loadings, load factors, code requirements and design procedures. Characteristics of structural steel and structural timber in building construction. Structural design of axially loaded tension and compression members, joists, beams, girders, trusses and framing systems.

CIVE 388 Foundation and Concrete Design.
(3) (3-1-5) (Prerequisite: CIVE 284.) Physical properties of concrete; behaviour and design of reinforced concrete members in compression, tension, bending, shear and combined loadings; bond and anchorage; soil properties, soil testing, footings; pile foundation; shorting; retaining walls.

CIVE 416 Geotechnical Engineering.
(3) (3-2-4) (Prerequisite: CIVE 311) Earth pressure theory, retaining walls, sheet pile walls, braced excavations, slope stability analysis, 2D flow through isotropic and anisotropic soils. Bearing capacity and settlement of shallow foundations, stress distribution. Deep foundations, single pile, pile groups. Geotechnical investigation and reports.

CIVE 418 Design Project.
(4) (1-2-6) (Prerequisite: Completion of an approved set of required and complementary courses; normally restricted to final semester.) Capstone design project.

CIVE 421 Municipal Systems.
(3) (3-2-4) (Prerequisite: CIVE 327) Design of water-related municipal services; sources of water and intake design; estimation of water demand and wastewater production rates; design, construction and maintenance of water distribution, wastewater and stormwater collection systems; pumps and pumping stations; pipe materials, network analysis and optimization; storage; treatment objectives for water and wastewater.

CIVE 428 Water Resources and Hydraulic Engineering.
(3) (3-3-3) (Prerequisite: CIVE 327) Application of continuity, energy and momentum concepts to open-channel flow; design of channels considering uniform flow and flow resistance, non-uniform flow and longitudinal profiles; design of channel controls and transitions; unsteady flow and flood routing; river ice engineering.

CIVE 430 Water Treatment and Pollution Control.
(3) (3-3-3) (Prerequisites: CIVE 225 and CIVE 327)
Principles of water and sewage treatment. Water and sewage characteristics; design of conventional unit operations and processes; laboratory analyses of potable and waste waters.

CIVE 432 Technical Paper.
(1) (0-0-3) (Prerequisite: CCOM 206 or EDEC 206) A technical paper, on a suitable topic, is to be prepared in accordance with detailed instructions which are provided by the Department. This paper will normally be written in the U3 year and may be submitted in September or January.

CIVE 433 Urban Planning.
(3) (3-1-5) (Restriction: Not open to U0 and U1 students.) The City in History. The planning profession, evolution of planning in North America, Canada and Quebec. Planning theories, the general or master plan, planning processes and techniques, planning and design of residential subdivisions. Local planning issues, housing policies, planning laws.

CIVE 440 Traffic Engineering.
(3) (3-1-5) (Prerequisite: CIVE 319 (a D grade is acceptable for prerequisite purposes)) Driver, vehicle and traffic flow characteristics; origin-destination studies, traffic studies and analysis, accident studies, queuing theory applications, gap acceptance, simulation, highway capacity, traffic regulations and control measures, intersection control.

CIVE 446 Construction Engineering.
(3) (3-1-5) (Prerequisite: CIVE 208 and MIME 310.)
Project management principles; construction equipment economics, selection, operation; characteristics of building, heavy, marine, underground and route construction projects; international projects.

CIVE 451 Geoenvironmental Engineering.
(3) (3-2-4) (Prerequisites: CIVE 225 and CIVE 311)
Geoenvironmental hazards; land management of waste; regulatory overview, waste characterization; soil-waste interaction; geosynthetics; low permeability clay barriers; contaminant transport; containment systems; collection and removal systems; design aspects; strategies for remediation; rehabilitation technologies.

CIVE 452 Water Resources in Barbados.
(3) (Corequisites: None.) (Restrictions: Must be enrolled in the Barbados Field Study Semester.) Physical environment challenges, centered on water, being faced by an island nation. Guest speakers, field study tours and laboratory tests. Private, government and NGO institutional context of conservation strategies, and water quantity and quality analyses for water management specific to Barbados.

CIVE 460 Matrix Structural Analysis.
(3) (3-2-4) (Prerequisites: CIVE 206 and CIVE 317)
Computer structural analysis, direct stiffness applied to two and three dimensional frames and trusses, matrix force method, non-linear problems, buckling of trusses and frames, introduction to finite element analysis.

CIVE 462 Design of Steel Structures.
(3) (3-3-3) (Prerequisite: CIVE 318) Design of structural steel elements: plate girders, members under combined loadings, eccentrically loaded connections, structural systems. Design of structural steel systems: composite floor systems, braced frames, moment resisting frames.
CIVE 463 Design of Concrete Structures.
(3) (3-3-3) (Prerequisite: CIVE 318) Review of flexural behaviour and design concepts. Design of flexural members, columns, two-way slab systems, retaining walls, disturbed regions, and shear walls. Introduction to prestressed concrete design.

CIVE 469 Infrastructure and Society.
(3) (3-2-4) (Prerequisite: MIME 310) Infrastructure systems, historical background and socio-economic impact; planning, organization, communication and decision support systems; budgeting and management; operations, maintenance, rehabilitation and replacement issues; public and private sectors, privatization and governments; infrastructure crisis and new technologies; legal, environmental, socio-economic and political aspects of infrastructure issues; professional ethics and responsibilities; case studies.

CIVE 470 Undergraduate Research Project.
(3) (0-1-8) (Prerequisite: 60 credits in the Civil Engineering and Applied Mechanics program) Open to students with a high CGPA. A research project must be carried out and a technical paper prepared under the supervision of a member of staff. The project must be established with the consent of the Staff Supervisor, and must be approved by the Department before registration. May be taken in conjunction with the required course CIVE 418 and the project therefore can be carried out through two semesters.

CIVE 492 Structures.
(2) (2-2-2) (Prerequisites: CIVE 385 and CIVE 388) A study of structural systems in concrete, steel, timber; a philosophy of structure; choice of structure; economic factors in design; recent developments and trends in structure; lateral stability by frame action, bracing shear walls; mechanics of certain structural forms.

CIVE 512 Advanced Civil Engineering Materials.
(3) (3-2-4) (Prerequisite: CIVE 202) Production, structure and properties of engineering materials; ferrous alloys, treatments, welding, special steels, cast iron; ceramic materials; polymers; composite materials; concrete, admixtures, structure, creep, shrinkage; asphalt and asphaltic materials; clay materials and bricks; impact of environment on material response, durability, quality assessment and control, industrial specifications; recent advances.

CIVE 519 Sustainable Development Plans.
(6) (1-3-8) (Restriction: Must be enrolled in the Barbados Field Study Semester.) Geared for solving real-world environmental problems related to water at the local, regional and international scale in Barbados. Projects to be designed by instructors in consultation with university, government and NGO partners and to be conducted by teams of two to four students in collaboration with them.

CIVE 527 Renovation and Preservation: Infrastructure.
(3) (3-2-4) (Prerequisite: CIVE 202 and CIVE 318) Maintenance, rehabilitation, renovation and preservation of infrastructure; infrastructure degradation mechanisms; mechanical, chemical and biological degradation; corrosion of steel; condition surveys and evaluation of buildings and bridges; repair and preservation materials, techniques and strategies; codes and guidelines; case studies.

CIVE 540 Urban Transportation Planning.
(3) (3-1-5) (Prerequisite: CIVE 319 or permission of instructor.) Process and techniques of urban transportation engineering and planning, including demand analysis framework, data collection procedures, travel demand modelling and forecasting, and cost-effectiveness framework for evaluation of project and system alternatives.

CIVE 546 Selected Topics in Civil Engineering 1.
(3) (3-0-6) (Prerequisite (Undergraduate): Permission of instructor) Special topics related to Civil Engineering will be presented by staff and visiting lecturers.

CIVE 550 Water Resources Management.
(3) (3-0-6) (Prerequisite (Undergraduate): CIVE 323 or equivalent) State-of-the-art water resources management techniques; case studies of their application to Canadian situations; identification of major issues and problem areas; interprovincial and international river basins; implications of development alternatives; institutional arrangements for planning and development of water resources; and, legal and economic aspects.

CIVE 551 Environmental Transport Processes.
(3) (3-2-4) (Prerequisite: CIVE 225 or Permission of instructor.) Equilibrium partitioning of pollutants in multiphase systems, sorption isotherms, diffusive mass transport, inter-phase mass transfer kinetics, contaminant transport processes in the subsurface porous media and in natural aquatic systems, mass transport in water and wastewater treatment systems.

CIVE 553 Stream Pollution and Control.
(3) (3-2-4) (Prerequisite (Undergraduate): CIVE 225) Water quality standards. Physical and chemical pollution, and bacterial contamination of surface waters. Effects of specific types of pollution such as thermal, point and non-point sources. Stream self purification. Effects on lake eutrophication. Pollution surveys and methods of control.

CIVE 555 Environmental Data Analysis.

CIVE 572 Computational Hydraulics.
(3) (3-0-6) (Prerequisite: CIVE 327 or equivalent) Computation of unsteady flows in open channels; abrupt waves, flood waves, tidal propagations; method of characteristics; mathematical modelling of river and coastal currents.

CIVE 573 Hydraulic Structures.
(3) (3-0-6) (Prerequisites: CIVE 323 and CIVE 327) Hydraulic aspects of the theory and design of hydraulic structures. Storage dams, spillways, outlet works, diversion works, drop structures, stone structures, conveyance and control structures, flow measurement and culverts.

CIVE 574 Fluid Mechanics of Water Pollution.
(3) (3-0-6) (Prerequisite: CIVE 327 or equivalent.) Mixing, dilution and dispersion of pollutants discharged into lakes, rivers, estuaries and oceans; salinity intrusion in estuaries and its effects on dispersion; biochemical oxygen demand and dissolved oxygen as water quality indicators; thermal pollution; oil pollution.

CIVE 577 River Engineering.
(3) (3-0-6) (Prerequisite (Undergraduate): CIVE 428 or permission of the instructor.) (Corequisite (Graduate): CIVE 428) Fluvial geomorphology; sediment properties; river turbulence; mechanics of the entrainment, transportation and deposition of solids by fluids; threshold of movement; bed forms; suspended load, bed load and total load equations; stable channel design and regime rivers; river modelling; river engineering; and river management.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses taught only in alternate years.
† Professional Practice (Stage) in Dietetics involving special prerequisites.
● Indicates that departmental approval/permission must be obtained by a student prior to registration.
✦ Denotes courses not available as Education electives.
▲ Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
❉ Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
✱ Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.

2011-2012 Undergraduate Programs, McGill University
CIVE 584 Groundwater Engineering.
(3) (Prerequisite: CIVE 311 or Permission of Instructor.)
Origins and types of groundwater; Darcy's law; hydraulic anisotropy; conservation laws; fundamental equations of porous media flow; Laplace's and Poisson's equations: analytical solution of potential flow problems; determination of hydraulic conductivity; flow in unconfined and confined aquifers; seepage modelling; unsaturated flow; transient flows in porous media; introduction to computational methods.

ECSE-Electrical Engineering
Offered by: Electrical & Computer Engr
ECSE 200 Electric Circuits 1.
(3) (3-1-5) (Prerequisite: PHYS 142 or CEGEP equivalent.) (Corequisite: MATH 263 or MATH 325.) (Tutorials assigned by instructor.) Circuit variables, analysis of resistive circuits. Network theorems (Kirchhoff's law, Ohm's law, Norton and Thevenin equivalent). Ammeters, voltmeters, and ohmmeters. Analysis methods (nodal and mesh analysis, linearity, superposition). Dependent sources and OpAmps. Energy Storage elements. First-order circuits.

ECSE 210 Electric Circuits 2.
(3) (3-2-4) (Prerequisite: ECSE 200) (For Fall Term: Limited to Electrical Honours and Computer Engineering students only.) (For Winter Term: Limited to Regular Electrical Engineering students only.) (Tutorials assigned by instructor.) Second-order circuits. Sinusoidal sources and phasors. AC steady-state analysis. AC steady-state power. Laplace transform. Circuit analysis in the s-Domain. Frequency response. Mutual inductance and transformers. Two-port circuits.

ECSE 211 Design Principles and Methods.
(3) (2-6-1) (Prerequisites: ECSE 200 and COMP 202.) (Corequisite: ECSE 291.) Engineering process: design specifications, parameters, optimization, implementation, troubleshooting and refinement; project management: scheduling, risk analysis, project control; case studies; design examples and project.

ECSE 212 Properties of Materials in Electrical Engineering.
(3) (3-1-5) (Restriction: Not open to students who have taken or are taking MIME 262.) Properties of a material continuum and crystalline state; properties of atoms in materials; conduction electrons in materials; electronic properties of semiconductors and metals; magnetic and thermal properties of materials; applications of electronic materials in semiconductor technology, recording media and transducers.

ECSE 221 Introduction to Computer Engineering.

ECSE 291 Electrical Measurements Laboratory.
(2) (1-4-1) (Corequisite: ECSE 210) (Lab hours assigned by instructor.) Experiments with fundamental electric circuits illustrating the principles and limitations of basic electrical and electronic instrumentation in typical measurement applications. Introduction to basic electrical laboratory practice, design of experiments, and safety procedures. Introduction to error analysis and application to laboratory measurements. Design of electric circuits and characterization.

ECSE 303 Signals and Systems 1.
(3) (3-2-4) (Prerequisites: ECSE 210, MATH 247 or MATH 270 or MATH 271.) (Corequisite: MATH 249 or MATH 381) (Tutorials assigned by instructor.) Elementary continuous and discrete-time signals, impulse functions, basic properties of discrete and continuous linear time-invariant (LTI) systems, Fourier representation of continuous-time periodic and aperiodic signals, the Laplace transform, time and frequency analysis of continuous-time LTI systems, application of transform techniques to electric circuit analysis.

ECSE 304 Signals and Systems 2.
(3) (3-2-4) (Prerequisite: ECSE 303) (Tutorials assigned by instructor.) Application of transforms to the analysis of LTI single-loop feedback systems, the discrete-time Fourier series, the discrete-time Fourier transform, the Z transform, time and frequency analysis of discrete-time LTI systems, sampling systems, application of continuous and discrete-time signal theory to communications LTI systems.

ECSE 305 Probability and Random Signals 1.
(3) (3-2-4) (Prerequisite: ECSE 303 or ECSE 306.) (Tutorials assigned by instructor.) The basic probability model, the heuristics of model-building and the additivity of probability; classical models; conditional probability and Bayes rule; random variables and vectors, distribution and density functions, expectation; statistical independence, laws of large numbers, central limit theorem; introduction to random processes and random signal analysis.

ECSE 306 Fundamentals of Signals and Systems.
(3) (3-2-4) (Prerequisites: ECSE 210 and MATH 270 or MATH 271.) Review of complex functions. Discrete- and continuous-time signals, basic system properties. Linear time-invariant systems, convolution. Fourier series and Fourier transforms, frequency domain analysis, filtering, sampling. Laplace transforms and inversion, transfer functions, poles and zeros, solutions of linear constant-coefficient differential equations, transient and steady state response. Z-transforms.

ECSE 321 Introduction to Software Engineering.
(3) (3-2-4) (Prerequisite: COMP 202 or COMP 208) (Tutorials assigned by instructor.) Design, development and testing of software systems. Software life cycle: requirements analysis, software architecture and design, implementation, integration, test planning, and maintenance. The course involves a group project.

ECSE 322 Computer Engineering.
(3) (3-2-4) (Prerequisites: ECSE 200 or MECH 383, and ECSE 221) (Tutorials assigned by instructor.) Data structures (arrays, lists, stacks, queues, dequeues and trees) and their machine representation and simple algorithms. Peripheral devices: printers, keyboards, magnetic type drives, magnetic disc drives. Peripheral interfacing and busses. Introduction to operating systems. System integration. Computer systems and networks.

ECSE 323 Digital System Design.
(5) (3-6-6) (Prerequisites: CCOM 206 or EDEC 206, ECSE 211, ECSE 221, ECSE 291) (Tutorials and lab hours assigned by instructor.) Minimization and synthesis of combinational logic and finite state machines. Synthesis of synchronous and asynchronous sequential circuits. Principles of control design. Basic concepts of design for testability. The laboratory experiments involve the design and testing of digital systems using small and medium scale integrated circuits. CAD software is used in the design process.

ECSE 330 Introduction to Electronics.
(3) (3-2-4) (Prerequisite: ECSE 210) (Tutorials assigned by instructor.) Introduction to electronic circuits using operational amplifiers, PN junction diodes, bipolar junction transistors (BJTs), and MOS field-effect transistors (MOSFETs), including: terminal characteristics, large- and small-signal models; configuration and frequency response of single-stage amplifiers with discrete biasing. Introduction to SPICE. Simulation experiments.

ECSE 334 Introduction to Microelectronics.
(3) (3-2-4) (Prerequisites: ECSE 291, ECSE 303 or ECSE 306, ECSE 330.) (Tutorials assigned by instructor.) Single-stage integrated-circuit amplifiers; differential and multistage amplifiers, integrated-circuit biasing techniques; non-ideal characteristics, frequency response; feedback amplifiers, output stages; digital CMOS logic circuits.

ECSE 351 Electromagnetic Fields.
(3) (3-1-5) (Prerequisites: ECSE 200, MATH 264.) (Tutorials assigned by instructor.) Maxwell's equations, electrostatics, magnetostatics and induction for power-frequency electrical engineering problems.
ECSE 352 Electromagnetic Waves.

ECSE 353 Electromagnetic Fields and Waves.
(3) (3-2-4) (Prerequisites: ECSE 210, MATH 264.) (Tutorials assigned by instructor.) Maxwell's equations. Waves in free space and on transmission lines. Electric and magnetic field and energy. Magnetic materials. Faraday's law. Applications to engineering problems. S-parameters.

ECSE 361 Power Engineering.

ECSE 404 Control Systems.
(3) (3-0-6) (Corequisite: ECSE 304 or ECSE 306.) Modelling and simulation of control systems; basic concepts of linear systems; open and closed loop control; classical design of controllers - specifications in the step response and the frequency domain; state space design of controllers - pole placement and LQR; sampled data systems.

ECSE 405 Antennas.
(3) (3-0-6) (Prerequisites: ECSE 303 and ECSE 352.) (Restriction: Not open to students who have taken ECSE 593.) Fundamentals of antenna theory: sources, radiation pattern and gain. Classification of antennas. Main antenna types and their characteristics. Antenna temperature, remote sensing and radar cross-section. Self and mutual impedances. Special topics include adaptive antennas, very large array (VLA) used in radio astronomy and biomedical applications.

ECSE 411 Communications Systems 1.
(3) (3-1-5) (Prerequisites: ECSE 305, ECSE 304 or ECSE 306.) (Tutorials assigned by instructor.) Communication system models; AM and FM modulation, performance of AM and FM systems in noise; sampling, PCM and DPCM techniques; FDM and TDM multiplexing systems; baseband digital transmission over bandlimited channels, digital modulation and detection techniques; illustrative examples of subscriber loop telephone systems, cable TV systems and broadcasting systems.

ECSE 412 Discrete Time Signal Processing.
(3) (3-1-5) (Prerequisite: ECSE 304 or ECSE 306.) (Tutorials assigned by instructor.) Discrete-time signals and systems; Fourier and Z-transform analysis techniques, the discrete Fourier transform; elements of FIR and IIR filter design, filter structures; FFT techniques for high speed convolution; quantization effects.

ECSE 413 Communications Systems 2.
(3) (3-0-6) (Prerequisite: ECSE 411) (Tutorials assigned by instructor.) Introduction to radio communications; satellite communication systems; the cellular concept; fading channel models, digital modulation techniques over fading channels, diversity systems, spread spectrum techniques; fixed assignment multiple access (FDMA, TDMA, CDMA), duplexing methods (FDD, TDD); illustrative examples of terrestrial mobile systems, fixed wireless systems, LEOs, etc.; overview of standardization activities.

ECSE 414 Introduction to Telecommunication Networks.
(3) (3-0-6) (Prerequisites: ECSE 322, and ECSE 304 or ECSE 306.) Introduction to the physical and software architecture of modern networks; circuit and packet switching; layered design principles; wired and wireless access systems; flow and congestion control; addressing and routing for unicast, multicast, and broadcast transmission; multiple access protocols; client-server and peer-to-peer architectures. Examples: Ethernet, TCP/IP, 802.11, ARQ, OSPF, BGP.

ECSE 420 Parallel Computing.
(3) (3-2-4) (Prerequisite: ECSE 427) Modern parallel computing architectures for shared memory, message passing and data parallel programming models. The design of cache coherent shared memory multiprocessors. Programming techniques for multithreaded, message passing and distributed systems. Use of modern programming languages and parallel programming libraries.

ECSE 421 Embedded Systems.
(3) (3-0-6) (Prerequisites: ECSE 322, ECSE 323.) Definition, structure and properties of embedded systems. Real-time programming: interrupts, latency, context, re-entrancy, thread and process models. Microcontroller and DSP architectures, I/O systems, timing and event management. Real-time kernels and services. Techniques for development, debugging and verification. Techniques for limited resource environments. Networking for distributed systems.

ECSE 422 Fault Tolerant Computing.
(3) (3-0-6) (Prerequisite: ECSE 322.) Introduction to fault-tolerant systems. Fault-tolerance techniques through hardware, software, information and time redundancy. Failure classification, failure semantics, failure masking. Exception handling: detection, recovery, masking and propagation, termination vs. resumption. Reliable storage, reliable communication. Process groups, synchronous and asynchronous group membership and broadcast services. Automatic redundancy management. Case studies.

ECSE 423 Fundamentals of Photonics.
(3) (3-2-4) (Prerequisites: ECSE 352) Introduction to the fundamentals of modern optics and photonics. Geometric optics, wave optics, Gaussian beam optics and resonators, electromagnetic optics, polarization, Fourier optics. Attenuation and dispersion, interference, coherence, diffraction. Classical description of optical amplifiers, introduction to lasers. Experiments on physical and geometric optics.

ECSE 424 Human-Computer Interaction.
(3) (3-4-2) (Prerequisite: ECSE 322) The course highlights human-computer interaction strategies from an engineering perspective. Topics include user interfaces, novel paradigms in human-computer interaction, affordances, ecological interface design, ubiquitous computing and computer-supported cooperative work. Attention will be paid to issues of safety, usability, and performance.


Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

= Denotes courses taught only in alternate years.
† Professional Practice (Stage) in Dietetics involving special prerequisites.
 xlim Indicates that departmental approval/permission must be obtained by a student prior to registration.
† Denotes courses not available as Education electives.
▲ Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
▲ Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.

2011-2012 Undergraduate Programs, McGill University C-137
ECSE 426 Microprocessor Systems.
(3) (1-3-5) (Prerequisites: CCOM 206 or EDEC 206, ECSE 323) (This course may be counted as a technical complementary or as a lab complementary.) (Limited Enrolment (50)) (Lab hours assigned by instructor.) Introduction to current microprocessors, their architecture, programming, interfacing and operating systems. The course includes lectures, use of crossassemblers, and simulators as well as laboratory experiments on actual microprocessor hardware.

ECSE 427 Operating Systems.
(3) (3-1-5) (Prerequisite: ECSE 322 or COMP 272) (Tutorials assigned by instructor.) Operating system services, file system organization, disk and cpu scheduling, virtual memory management, concurrent processing and distributed systems, protection and security. Aspects of the DOS and UNIX operating systems and the C programming language. Programs that communicate between workstations across a network.

ECSE 428 Software Engineering Practice.
(3) (3-1-5) (Students meet with the instructor and/or teaching assistant for one hour each week to discuss their project.) (Prerequisite: ECSE 321 or COMP 335) Software engineering practice in industry, related to the design and commissioning of large software systems. Ethical, social, economic, safety and legal issues. Metrics, project management, costing, marketing, control, standards, CASE tools and bugs. The course involves a large team project.

ECSE 429 Software Validation.
(3) (3-2-4) (Prerequisite: ECSE 321 or COMP 303) Correct and complete implementation of software requirements. Verification and validation lifecycle. Requirements analysis, model based analysis, and design analysis. Unit and system testing, performance, risk management, software reuse. Ubiquitous computing.

ECSE 430 Photonic Devices and Systems.
(3) (3-2-4) (Prerequisite: ECSE 352, PHYS 271.) (Tutorials assigned by instructor.) Introduction to photonic devices and applications. Semiconductor lasers, optical amplifiers, optical modulators, photodetectors and optical receivers, optical fibers and waveguides, fiber and waveguide devices. Photonic systems (communications, sensing, biomedical). Experiments on characterizing photonic devices and systems. Optical test-and-measurement instrumentation.

ECSE 431 Introduction to VLSI CAD.
(3) (3-0-6) (Restriction: Not open to students in Electrical Engineering.) Quantitative analysis of diodes and transistors. Semiconductor fundamentals, equilibrium and non-equilibrium carrier transport, and Fermi levels. PN junction diodes, the ideal diode, and diode switching. Bipolar Junction Transistors (BJT), physics of the ideal BJT, the Ebers-Moll model. Field effect transistors, metal-oxide semiconductor structures, static and dynamic behaviour, small-signal models.

ECSE 432 Physical Basis: Transistor Devices.
(3) (3-0-6) (Prerequisites: ECSE 212 or MME 262, ECSE 330, ECSE 351 and PHYS 271) Quantitative analysis of diodes and transistors. Semiconductor fundamentals, equilibrium and non-equilibrium carrier transport, and Fermi levels. PN junction diodes, the ideal diode, and diode switching. Bipolar Junction Transistors (BJT), physics of the ideal BJT, the Ebers-Moll model. Field effect transistors, metal-oxide semiconductor structures, static and dynamic behaviour, small-signal models.

ECSE 434 Microelectronics Laboratory.
(2) (1-3-2) (Prerequisites: CCOM 206 or EDEC 206, ECSE 334) Designing, building, and debugging electronic hardware using discrete transistors and circuit building blocks; Designing, simulating, laying-out, and post-fabrication experimental testing of an integrated circuit (IC). The laboratory experiments are designed to reinforce the microelectronics circuit theory studied in ECSE 334.

ECSE 435 Mixed-Signal Test Techniques.
(3) (3-2-4) (Prerequisites: ECSE 304 and ECSE 334.) (Note: This course may be counted as a technical complementary or as a lab complementary.) Purpose and economics of mixed-signal test, DC measurements. Accuracy and repeatability. DSP-based theory and its applications to parametric testing of analog filters, DACs, and ADC. Timing and PLL measurements. Design for Testability.

ECSE 436 Signal Processing Hardware.
(3) (1-3-5) (Prerequisites: ECSE 322, ECSE 323, ECSE 304 or ECSE 306.) (Note: This course may be counted as a technical complementary or as a lab complementary. Limited enrolment (20).) Review of basic concepts in signals and microprocessors. Digital Signal Processing microprocessor architecture. Finite precision effects, real-time constraints, assembly language optimization. Implementation of DSP algorithms on a DSP microprocessor platform. Lab experiments on FIR filtering, IIR filtering, FFT computation, LPC analysis, circular and bit-reversed addressing, ping-pong buffering and frame-based processing.

ECSE 443 Introduction to Numerical Methods in Electrical Engineering.
(3) (3-2-4) (Prerequisites: ECSE 221, ECSE 330, ECSE 351 or ECSE 353.) (Corequisite: For CE students only: ECSE 353.) Symbolic vs. numerical computation. Number representation and numerical error; curve fitting and interpolation; numerical differentiation and integration; solutions of systems of linear equations and nonlinear equations; solutions of ordinary and partial differential equations; optimization. Applications in electrical engineering analysis and design. Evaluation of numerical software packages.

ECSE 450 Electromagnetic Compatibility.
(3) (2-4-3) (Prerequisites: ECSE 221, ECSE 334, ECSE 352 or ECSE 353.) Electromagnetic Compatibility (EMC), regulations and EMC requirements of electronic systems, non-ideal behaviour of circuit components, signal spectra, radiated emission and susceptibility, conducted noise, crosstalk, differential mode and common mode, shielding, and system design for EMC.

ECSE 451 EM Transmission and Radiation.
(3) (3-0-6) (Prerequisite: ECSE 352) Microwave transmission through waveguides: impedance matching, microwave devices, filters and resonators; microwave transmission though free space; near and far field behaviour of electromagnetic radiators, simple antennas. antenna arrays, practical antenna parameters; the physics of the radio communication channel: reflection, diffraction and scattering and their macroscopic impact (multipath, fading).

ECSE 456 ECSE Design Project 1.
(3) (Prerequisites: ECSE 211, ECSE 322, ECSE 323, ECSE 330) (Corequisite: FACC 400) A design project undertaken with close mentorship by a staff member and under the supervision of the course instructor. The project consists of defining an engineering problem, reviewing relevant background, acquiring/analyzing data, and seeking solutions using appropriate simulation/analysis tools and experimental investigations. Professional engineering practices will be followed.

ECSE 457 ECSE Design Project 2.
(3) (Prerequisite: ECSE 456) A design project undertaken with close mentorship by a staff member and under the supervision of the course instructor. The course is a continuation of ECSE 456.

ECSE 460 Appareillage électrique (Electrical Power Equipment).
(3) (3-2-4) (Prerequisite: ECSE 361.) (Taught in French.) (This course is offered by the Power Engineering Institute.) Éléments d’un réseau de transport. Lignes: modélisation et paramètres. Transformateurs: circuits équivalents, pertes, branchement. Protection. Disjoncteurs: fonctionnement et dimensionnement. Équipements de compensation: condensateurs, branchement série et shunt, inductances. Coordination d’isolation.

ECSE 461 Electric Machinery.
(3) (3-0-6) (Restriction: Not open to students in Electrical Engineering.) (Note: Tutorials assigned by instructor.) Electric and magnetic circuits. Notions of electromechanical energy conversion applied to electrical machines. Basic electrical machines - transformers, direct-current motors, synchronous motors and generators, three phase and single phase induction machines. Elements of modern electronically controlled electric

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drive systems.

**ECSE 463 Matériaux de l'électrotechnique.**
(3) (3-0-6) (Prerequisite: ECSE 361) (Note: Taught in French. This course is offered by the Power Engineering Institute.) Applications de matériaux à l'électricité: appareillage, transformateurs, machines électriques. Matériaux conducteurs: propriétés, pertes, isolation. Matériaux magnétiques: propriétés thermiques / mécaniques, pertes, types, aimants. Matériaux isolants: conductivité, pertes, claquage et performances des isolants, contraintes. Caractérisation et diagnostic: essais et analyses, mécanismes de vieillissement et de défaillance, maintenance prédictive. Considérations et équipements typiques.

**ECSE 464 Power Systems Analysis 1.**
(3) (3-0-6) (Prerequisite: ECSE 361) (This course is offered by the Power Engineering Institute.) Basic principles of planning and operating interconnected power systems with emphasis on Canadian conditions. Mathematical models for system. Steady-state analysis of power systems, load flow formulation and solution algorithms. Operating strategies, economic dispatch, voltage reactive power regulation, frequency and tie-line power control.

**ECSE 465 Power Electronic Systems.**
(3) (3-2-4) (Prerequisites: ECSE 334, ECSE 361) (This course is offered by the Power Engineering Institute.) Introduction to power electronics: definition, applications and classification of converters. Review of analytical techniques. Overview of power semiconductor switches. Line communicated rectifiers and inverters. Switch mode power converters and modulation techniques. Choppers, inverters and rectifiers. Resonant mode converters. Application to power systems and energy conversion.

**ECSE 467 Comportement des réseaux électriques.**

**ECSE 468 Electricité industrielle (Industrial Power Systems).**
(3) (3-2-4) (Prerequisite: ECSE 361) (This course is offered by the Power Engineering Institute.) (Taught in French.) Structure des réseaux électriques industriels. Niveau de tension. Installations électriques, codes et normes. Court-circuits, protection et coordination. Mise à la terre. Qualité de l'onde. Facteur de puissance, tarification et gestion de l'énergie électrique.

**ECSE 469 Protection des réseaux électriques.**
(3) (3-0-6) (Prerequisite: ECSE 361) (Note: Taught in French. This course is offered by the Power Engineering Institute.) Généralités sur les systèmes de protection. Calculs de défauts symétriques et asymétriques. Transformateurs de mesure. Système à mise à la terre. Types de relais de protection. Protection de transformateur, de barres, de ligne de transport: philosophie et application. Conception des systèmes de protection. Homologation et essais de relais.

**ECSE 474 Design Project 1.**
(1) (0-2-1) (Prerequisites: ECSE 211, ECSE 322, ECSE 323, and ECSE 330) A laboratory design project undertaken with close supervision by a staff member. The project consists of defining an engineering problem, reviewing relevant background and literature, and seeking the solution through numerical simulation and/or experimental investigation. A literature review, written project proposal, and seminar presentation are required.

**ECSE 475 Design Project 2.**
(2) (0-5-1) (Prerequisite: ECSE 474) A laboratory design project undertaken with close supervision by a staff member. A continuation of ECSE 474 Design Project 1. The work consists of carrying out the project plan developed in ECSE 474 Design Project 1 producing a report summarizing the results, and a seminar presentation.

**ECSE 476 Software Engineering Design Project 1.**
(1) (Prerequisites: CCOM 206 or EDEC 206, COMP 302, ECSE 306, ECSE 321, ECSE 322) Design project in software engineering.

**ECSE 477 Software Engineering Design Project 2.**
(2) (Prerequisite: ECSE 476) Design project in software engineering.

**ECSE 485 IC Fabrication Laboratory.**
(2) (1-3-2) (Prerequisites: CCOM 206 or EDEC 206, ECSE 334) (Corequisite: ECSE 432 or ECSE 533) (Limited Enrolment - 12) (Lab hours assigned by instructor.) Essential processes for silicon semiconductor device fabrication: etching, diffusion, photolithography. Fabrication of large area PN junctions, selective area PN junctions and MOSFETs. Design and fabrication of simple MOS circuits. Electrical characterization of devices and circuits.

**ECSE 486 Power Laboratory.**
(2) (1-3-2) (Prerequisites: CCOM 206 or EDEC 206, ECSE 334, ECSE 361) (Limited Enrolment - 14) (Lab hours assigned by instructor.) Techniques of electric power, efficiency, torque, speed measurements. Starting, running and control of electric machines: dc, synchronous, induction types. Power electronic controllers. Each group of students has access to a compact experiment bench containing a set of micro-machines and all the necessary equipment.

**ECSE 487 Computer Architecture Laboratory.**
(2) (1-3-2) (Prerequisite: CCOM 206 or EDEC 206) (Corequisite: ECSE 425) (Limited enrolment of 50) (Requires Permit to Register. See Department website.) (Lab hours assigned by instructor.) Basic software tools used in the design, synthesis and analysis of computer and communication systems such as data-paths, switching circuits, and arithmetic and logic circuits. Behavioral and structural modeling of hardware designs in the IEEE standard hardware description language VHDL. Synthesis and implementation of hardware designs using Programmable Logic Devices.

**ECSE 488 High Frequency Laboratory.**
(2) (1-3-2) (Prerequisites: CCOM 206 or EDEC 206, ECSE 291) (Corequisite: ECSE 481) (Limited Enrolment - 20) (Lab hours assigned by instructor.) High frequency measurement techniques. Vector network analyzer and spectrum analyzer. Resistors, capacitors and inductors at high frequencies. High-level signal handling of a high-frequency bandpass amplifier. Electromagnetic interference (EMI) and spectrum coordination. Cavity resonators. Standing waves in waveguides. Reciprocity of microwave networks. Scattering parameters of a microstrip network.

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*Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.*

- Denotes courses taught only in alternate years.
- Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
- Denotes courses not offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
- Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
ECSE 498 Telecommunication Network Laboratory.
(2) (0-3-3) (Prerequisite: CCOM 206 or EDEC 206.)
(Course requirement: ECSE 414 or ECSE 528.) (Lab hours assigned by instructor.) Practical insight into IP networking through hands on experience with network simulation software as well as common Internet monitoring and measurement tools. The experiments address MAC protocols, routing protocols, TCP, queuing disciplines and quality-of-service, network security and multimedia applications.

ECSE 490 Digital Signal Processing Laboratory.
(2) (0-3-3) (Prerequisites: CCOM 206 or EDEC 206, ECSE 281) (Corequisite: ECSE 412 or ECSE 512) (Limited Enrolment - 30) (Restriction: Departmental approval required) (Requires Permit to Register. See Department web site.) (Lab hours assigned by instructor.) Experiments involving the digital processing of signals using computer-aided design tools for design, processing and visualization and real-time processing using DSP chips. Filter structures and design, multi-rate signal processing, filter banks, fast transforms, adaptive filtering, signal coding and quantization.

ECSE 491 Communication Systems Laboratory.
(2) (0-3-3) (Prerequisites: CCOM 206 or EDEC 206, ECSE 291) (Corequisite: ECSE 411 or ECSE 511) (Limited Enrolment - 30) (Lab hours assigned by instructor.) Experimental studies and simulation of analog and digital transmission techniques. Performance of AM and FM systems. FSK and PSK modulation techniques and spectra. Sampling of analog signals, PCM and TDM techniques.

ECSE 492 Optical Communications Laboratory.
(2) (1-3-2) (Prerequisite: CCOM 206 or EDEC 206.)
(Corequisite: ECSE 423 or ECSE 527.) (Lab hours assigned by instructor.) Hands-on experience of the physical layer of optical communications systems. Experiments involving optical fiber link characterization, laser measurements, beam divergence, coupling efficiency. Use of lasers, optical spectrum analyser, data generator, beam profiler, photodetectors, optical filters. Experiments are supported with simulation and analysis software.

ECSE 493 Control and Robotics Laboratory.
(2) (1-3-2) (Prerequisites: CCOM 206 or EDEC 206, ECSE 291.) (Corequisite: ECSE 404 or ECSE 501.) (Limited Enrolment - 20) (Lab hours assigned by instructor.) Experimental studies for the design of control systems, with particular emphasis on motion control as applicable to robotics. Modeling of DC motors and electro-mechanical systems. Controller design in the time and frequency domain as well as state space. Experimental examples of PID, lead-lag, full state feedback and LQR controllers.

ECSE 494 Electrical Engineering Design Project.
(3) (0-5-4) (Prerequisites: CCOM 206 or EDEC 206 and at least 42 Departmental credits) (Limited Enrolment - 50) A laboratory design project undertaken with close supervision by a staff member. The project consists of defining an engineering problem and seeking the solution through experimental investigation. Results are reported in a seminar at the end of term and in a technical paper.

ECSE 498 Honours Thesis 1.
(3) (0-3-6) (Prerequisite: CCOM 206 or EDEC 206 and at least 42 Departmental credits) A research project undertaken with close mentorship by a staff member and under the supervision of the course instructor. The thesis consists of defining an engineering problem, reviewing relevant background, acquiring/analyzing data, and seeking design solutions using appropriate simulation/analysis tools and experimental investigations.

ECSE 499 Honours Thesis 2.
(3) (0-3-6) (Prerequisite: ECSE 498) A research project undertaken with close supervision by a staff member. A continuation of ECSE 498. The work consists of carrying out the research plan developed in ECSE 498 along with a seminar presentation at end of term.

ECSE 500 Mathematical Foundations of Systems.
(3) (3-0-6) (Restriction: Open only to graduate students within the Faculty of Engineering.) Basic set theories and algebraic structures, linear spaces, linear mappings, topological and metric spaces, separable spaces, continuity, compactness, Lebesque measure on Euclidean spaces, measurability, Banach spaces, Hilbert spaces, linear bounded operators in Banach spaces, dual spaces, adjoint operators, the Orthogonal Projection Theorem, properties of the Fourier series, convergence in probability.

ECSE 501 Linear Systems.
(3) (3-0-6) (Corequisite: ECSE 500 or permission of instructor.) Mathematical models of linear systems, fundamental solution and transition matrices, non-homogeneous linear equations, controllability and observability of linear systems, reachable subspaces, Cayley-Hamilton’s Theorem, Kalman’s controllability and observability rank conditions, minimal realizations, frequency response, invariant subspaces, finite and infinite horizon linear regulator problems, uniform, exponential, and input-output stability, the Lyapunov equation.

ECSE 504 Sampled Data Control.
(3) (3-0-6) (Prerequisite: ECSE 304 or ECSE 306.)
(Corequisites: ECSE 404 or ECSE 501.) Sampling and aliasing. Conversion of continuous-time controllers using s-to-z transformations; pre-and post-filtering. Discrete state representation and z-transfer function of sampled linear, time-invariant systems. Correspondence between system theoretic results for continuous- and discrete-time systems. Sampled-data design, including pole placement, LQR control and model predictive control.

ECSE 505 Nonlinear Control Systems.
(3) (3-0-6) (Prerequisite: ECSE 501) Basic ODE formulation of non-linear systems; structural properties; Lyapunov and LaSalle stability theory and nonlinear and multivariable controller design; input-output stability; small gain theorem, conservation, passivity; system linearization, zero and inverse dynamics and regulator design; discontinuous and sliding mode control; applications to deterministic adaptive control.

ECSE 506 Stochastic Control & Decision Theory.
(3) (3-0-6) (Prerequisites: ECSE 509 and ECSE 500.) Gaussian processes and tail bounds; Bandit problems and optimal policies; Markov decision processes; dynamic programming and optimal control in discrete time; learning models control from data; the ODE method and stochastic approximation; Q-learning; approximate dynamic programming; linear stochastic systems; linear Gaussian systems; linear-quadratic control; system identification and stochastic adaptive control.

ECSE 507 Optimization and Optimal Control.
(3) (3-0-6) (Prerequisites: MATH 264 or MATH 248, MATH 270 or MATH 271 or MATH 247.) General introduction to optimization methods including steepest descent, Newton algorithms. Generalized matrix inverses and the least squared error problem. Introduction to constrained optimality; convexity and duality; interior point methods. Introduction to dynamic optimization: existence theory, relaxed controls; the Pontryagin Maximum Principle. Sufficiency of the Maximum Principle.

ECSE 508 Multi-Agent Systems.
(3) (3-0-6) (Prerequisite: ECSE 305 or equivalent.) Introduction to game theory, strategic games, extensive form games with perfect and imperfect information, repeated games and folk theorems, cooperative game theory, introduction to mechanism design, markets and market equilibrium, pricing and resource allocation, application in telecommunication networks, applications in communication networks, stochastic games.

ECSE 509 Probability and Random Sig. 2.
(3) (3-0-6) (Prerequisites: ECSE 304 and ECSE 305) Multivariate Gaussian distributions; finite-dimensional mean-square estimation (multivariate case); principal components; introduction to random processes; weak stationarity, correlation functions, spectra, linear processing and estimation; Poisson processes and Markov chains: state processes, invariant distributions; stochastic simulation.
ECSE 510 Stochastic Processes and Systems.
(3) (3-0-6) (Prerequisites: ECSE 500 and ECSE 509 or equivalent.) Basic notions. Linear state space (SS) systems. Least squares estimation and prediction; conditional expectations; Orthogonal Projection Theorem. Kalman filtering; innovations; Riccati equation. ARMA and SS systems. Stationary processes; Wold decomposition; spectral factorization; Weiner filtering. The Weiner process; linear stochastic differential equations; continuous time filtering. Chapman-Kolmogorov, Fokker-Plank equations. Applications.

ECSE 511 Introduction to Digital Communication.
(3) (3-1-5) (Prerequisite: ECSE 304) (Corequisite: ECSE 509) (An advanced version of ECSE 411) (Tutorials assigned by instructor.) Amplitude and angle modulation including AM, FM, FDM and television systems; introduction to random processes; sampling and quantization, PCM systems, TDM; digital modulation techniques, Maximum-Likelihood receivers, synchronization issues; elements of information theory including information sources, source coding and channel capacity.

ECSE 512 Digital Signal Processing 1.
(3) (3-1-5) (Prerequisites: ECSE 304 and ECSE 305) Review of discrete-time transforms, sampling and quantization, frequency analysis. Structures for IIR and FIR filters, coefficient quantization, roundoff noise. The DFT, its properties, frequency analysis and filtering using DFT methods, the FFT and its implementation. Multirate processing, subsampling and interpolation, oversampling techniques.

ECSE 513 Robust Control Systems.
(3) (3-0-6) (Prerequisites: ECSE 304 and ECSE 500.) Feedback interconnections of LTI systems; Nominal stability and performance of feedback control systems; Norms of signals and systems; H2-optimal control; H-infinity-optimal control; Uncertainty modelling for robust control; Robust closed-loop stability and performance; Robust H-infinity control; Robustness check using mu-analysis; Robust controller design via mu-synthesis.

ECSE 514 Probabilistic Reasoning and Artificial Intelligence.
(3) (3-0-6) (Prerequisites: COMP 206, COMP 360, COMP 424 or ECSE 526, and MATH 523 or ECSE 505.) (Restriction: Not open to students who have taken COMP 526.) Belief networks, utility theory, Markov decision processes, learning algorithms.

ECSE 515 Optical Fibre Communications.
(3) (Prerequisite(s): ECSE 304, ECSE 305 and ECSE 571) Optical fibre communication technology and principles of optical transport: modulation formats, signal propagation and impairments in optical fibres, sources of noise, amplification and regeneration, optical signal processing technologies, system design.

ECSE 516 Hybrid Control Systems.
(3) (Prerequisite(s): ECSE 500 and ECSE 501 or equivalent) (Restriction(s): Accessible only to Honours Electrical Engineering and Graduate students in Engineering) Hybrid Control Systems specified via ODEs and automata: continuous and discrete states and dynamics; controlled and autonomous discrete state switching. Regular and exotic (e.g. chaotic and Zeno) trajectories. Stability and controllability. Hybrid Maximum Principle and Hybrid Dynamic Programming; optimal control theory and computational algorithms. Engineering, industrial and aerospace examples.

ECSE 517 Neural Prosthetic Systems.
(3) (Prerequisite(s): ECSE 303 or ECSE 306 and ECSE 305 or permission of instructor) (Restriction(s): Accessible only to Honours Electrical Engineering students and Graduate students in Engineering) Selected topics in bioengineering focusing on the principles of neural prosthetics systems (brain machine interfaces). Paralysis as a communication problem. Motor control theory receptive fields. Electrical properties of the central nervous system, modern measurement technologies, encoding and mutual information, statistical data analysis, decoding and thought prediction.

ECSE 518 Telecommunication Network Analysis.
(3) (Prerequisite(s): ECSE 414 or ECSE 528 or COMP 535 and ECSE 509) (Restriction: Accessible only to Honours Electrical Engineering students and Graduate students in Engineering) Mathematical modeling and analysis techniques for the control and management of modern networks. Introduction to queuing networks; birth/death processes; routing optimization and fairness; multi-commodity network flow; traffic modeling; effective bandwidth and network calculus; performance modeling.

ECSE 519 Semiconductor Nanostructures and Nanophotonic Devices.
(3) (Prerequisites: ECSE 352, ECSE 533) Physics, design, synthesis, and fundamental properties of semiconductor nanostructures, quantum dots, nanowires, and nanotubes. Nanoscale confinement of radiation, properties of microcavities, whispering gallery modes, photonic crystals, strong vs. weak coupling, and Purcell effect. Quantum dot lasers, nanowire LEDs, and photonic crystal lasers. Nonclassical light sources. Solar cells and thermoelectric devices.

ECSE 520 Parallel Computing Systems.
(3) (3-2-4) (Prerequisite: ECSE 427.) (Restriction: Credit will only be given for one of ECSE 420 and ECSE 520.) Parallel computing models: shared memory, message passing and data parallel. Single-chip multiprocessors. Techniques for designing scalable cache coherent shared memory multiprocessors. Programming shared memory and message passing systems. Multithreading and synchronization; interplay between parallel programming and architecture.

ECSE 521 Digital Communications 1.
(3) (3-0-6) (Prerequisite: ECSE 411 or ECSE 511) (Corequisite: ECSE 509) Transmission over AWGN channels: optimum receiver design, digital modulation techniques, coherent, noncoherent and differentially coherent detection. Signal design for bandlimited AWGN channels. Channel capacity. Channel coding: block codes, convolutional codes, coded modulation techniques, turbo codes. Transmission over AWGN and ISI channels: MLSE, linear equalization, decision-feedback equalization, precoding, multi-carrier transmission.

ECSE 523 Speech Communications.
(3) (3-0-6) (Prerequisite: ECSE 412 or ECSE 512) Articulatory and acoustic descriptions of speech production, speech production models, speech perception, digital processing of speech signals, vocoders using formant, linear predictive and cepstral techniques, overview of automatic speech recognition systems, speech synthesis systems and speaker verification systems.

ECSE 524 Interconnects and Signal Integrity.
(3) (3-0-6) (Prerequisites: ECSE 334 and ECSE 352 or ECSE 353.) Interconnect structures, signal integrity issues: reflection, crosstalk, noise, electromagnetic interference, Lossy transmission lines, RLGC matrix representations, wave propagation in multilayered substrates, periodically loaded lines, Floquet's theorem, power distribution network, simultaneous switching noise, packaging structures, chip
interconnection technologies, substrate integrated waveguides, methods for experimental characterization of interconnects, signal integrity CAD tools.

**ECSE 526 Artificial Intelligence.**
(3) (3-0-6) (Prerequisite: ECSE 322) Design principles of autonomous agents, agent architectures, machine learning, neural networks, genetic algorithms, and multi-agent collaboration. The course includes a term project that consists of designing and implementing software agents that collaborate and compete in a simulated environment.

**ECSE 527 Optical Engineering.**
(3) (3-0-6) (Prerequisite: ECSE 352) A structure introduction to modern optical engineering. Topics covered include the propagation of light through space, refraction, diffraction, polarization, lens systems, ray-tracing, aberrations, computer-aided design and optimization techniques, Gaussian beam analysis, micro-optics and computer-generated diffractive optical elements. Systems and applications will be stressed throughout.

**ECSE 528 Telecommunication Network Architecture.**
(3) (3-0-6) (Prerequisites: ECSE 304 and ECSE 322) Introduction to the architecture of telecommunication networks; OSI Layer Model and Internet protocol stack; Peer-to-peer and overlay networks; basic queuing theory; congestion control and reliable data transfer; addressing and routing for unicast and multicast transmission; traffic scheduling and shaping; quality-of-service principles; multiple access protocols; streaming media and network security.

**ECSE 529 Computer and Biological Vision.**
(3) (3-0-6) (Prerequisite: ECSE 304 or ECSE 306) Vision in man and machine, imaging process, spatial and frequency domain filters, biological vision, edge detection, intermediate features, connecting biological and psychophysical vision, science of colour.

**ECSE 530 Logic Synthesis.**

**ECSE 532 Computer Graphics.**
(3) (3-0-6) (Prerequisite: ECSE 322) Introduction to computer graphics systems and display devices: raster scan, scan conversion, graphical input and interactive techniques - window environments; display files: graphics languages and data structures; 2D transformations; 3D computer graphics, hidden line removal and shading; graphics system design; applications. Laboratory project involving the preparation and running of graphics programs.

**ECSE 533 Physical Basis of Semiconductor Devices.**
(3) (3-0-6) (Prerequisites: ECSE 330, ECSE 351 and PHYS 271) Quantitative analysis of diodes and transistors. Semiconductor fundamentals, equilibrium and non-equilibrium carrier transport, Fermi levels. PN junction diodes, the ideal diode, and diode switching. Bipolar Junction Transistors (BJT), physics of the ideal BJT, the Ebers-Moll model. Field effect transistors, metal-oxide semiconductor structures, static and dynamic behaviour, small-signal models.

**ECSE 534 Analog Microelectronics.**
(3) (3-0-6) (Prerequisite: ECSE 334) Design of analog ICs using specialized analog CAD tools such as SPICE. Voltage and current amplifier design which encompasses the study of biasing circuits, current sources and mirrors, input and output stages, and frequency compensation; precision reference sources; analog multipliers; oscillators; waveform generators and shaping circuits, and analog switches.

**ECSE 535 Nanoelectronic Devices.**

**ECSE 536 RF Microelectronics.**
(3) (3-3-3) (Prerequisite: ECSE 334.) (Restriction: Instructor's permission required.) Introduction to Radio Frequency Integrated Circuits and wireless transceiver architectures. Modelling of passive/active integrated devices. Design of monolithic bipolar and CMOS LNAs, mixers, filters, broadband amplifiers, RF power amplifiers, VCOs, and frequency synthesizers. Analysis of noise and non-linearity in RFICs. Project using modern RFIC simulation/layout CAD tools.

**ECSE 543 Numerical Methods in Electrical Engineering.**

**ECSE 545 Microelectronics Technology.**
(3) (3-0-6) (Prerequisite: ECSE 432 or ECSE 533) Basic techniques in the fabrication of microelectronic circuits. Four-point probe, alloyed contacts, diffusion processes, ion implantation epitaxy, silicon dioxide, photolithography, selected diffusion and metallization, transistor fabrication, dry etching, monolithic integrated circuits, isolation, mask making, thin and thick film components, MOS gate voltage and integrated circuits.

**ECSE 547 Finite Elements in Electrical Engineering.**

**ECSE 548 Introduction to VLSI Systems.**
(3) (2-2-5) (Prerequisites: ECSE 334 and ECSE 323) An interdisciplinary course for electrical engineering and computer science students. A structured design methodology for managing the complexity of VLSI system design. Sufficient information on integrated devices, circuits, digital subsystems and system architecture is presented to enable students to span the range of abstractions from device physics to VLSI digital systems.

**ECSE 549 Expert Systems in Electrical Design.**

**ECSE 559 Flexible AC Transmission Systems.**
(3) (3-0-6) (Prerequisites: ECSE 334 and ECSE 361) Operating principles of controllers of flexible AC transmission systems (FACTS). Transformer, thyristor and gate- turn-off thyristor (GTO) technologies. Modulation methods: harmonic elimination, pulse width modulation. Applications in: shunt and series advanced static VAR Controllers (ASVC), phase shifters, unified power flow controllers (UPFC).

**ECSE 563 Power Systems Operation and Planning.**
ECSE 565 Introduction to Power Electronics.
(3) (3-0-6) (Prerequisite: ECSE 334) Semiconductor power switches - thyristors, GTO's, bipolar transistors, MOSFET's. Switch mode power amplifiers. Buck and boost principles. Modulation methods -PWM, delta, hysteresis current control. Rectifiers, inverters, choppers.

ECSE 570 Automatic Speech Recognition.
(3) (3-0-6) (Prerequisites: ECSE 305 and ECSE 322.) Acoustic phonetics and signal representations. Pattern classification, stochastic modelling, language modelling and search algorithms as applied to speech recognition. Techniques for robustness, integration of speech recognition with other user interface modalities, and the role of automatic speech recognition in speech understanding.

ECSE 571 Optoelectronic Devices.
(3) (3-0-6) (Prerequisite: ECSE 352) (Corequisite: ECSE 533) Physical basis of optoelectronic devices including Light Emitting Diodes, semiconductor optical amplifiers, semiconductor lasers, quantum well devices, and solid state lasers. Quantitative description of detectors, optical modulation, optical logic devices, optical interconnects, and optomechanical hardware. Throughout the course, photonic systems applications will be addressed.

ECSE 572 Nonlinear Optics.
(3) (3-0-6) (Prerequisite: ECSE 352) Nonlinear optical processes and their applications: optical fibres, waveguides and crystals. Origin of second- and third-order nonlinear susceptibility, symmetry properties, coupled-wave propagation, phase-matching techniques, sum- and difference frequency generation, parametric amplification, four-wave mixing, self- and cross-phase modulation, soliton propagation, Raman scattering and the electro-optic effect.

ECSE 573 Microwave Electronics.
(3) (3-0-6) (Prerequisite: ECSE 432 or ECSE 533) Physical basis of modern microwave devices and circuits. Microwave transistors and tunnel diodes, transferred electron devices, transistor devices and infra red devices. Microwave generation and amplification, microwave FET circuits. Noise and power amplification.

ECSE 574 CMOS Sensor Microsystems.
(3) (3-0-6) (Prerequisite: ECSE 485) CMOS sensor microsystems, fundamentals of microfabrication, micromachining technology, recognition elements, CMOS signal detection components, and sensor system integration and packaging.

ECSE 593 Antennas and Propagation.
(3) (3-0-6) (Prerequisites: ECSE 303 and ECSE 352.) Fundamentals of antenna theory: sources, radiation pattern and gain. Classification of antennas. Main antenna types and their characteristics. Antenna temperature, remote sensing and radar cross-section. Self and mutual impedances. Special topics include adaptive antennas, very large array (VLA) used in radio astronomy and biomedical applications.

ECSE 596 Optical Waveguides.
(3) (3-0-6) (Prerequisite: ECSE 352) An in-depth analysis to guided-wave propagation. Dielectric waveguides (slab, 2D, non-linear, spatial solitons), optical fibers (modes, dispersion relations, propagation in dispersive, nonlinear fibers, temporal solitons), beam propagation method, coupled mode theory, waveguide devices (couplers, gratings, etc.). Selection of current research topics of interest (e.g., photonic crystals, optical signal processing, etc.).

ECSE 597 Circuit Simulators.

FACC-Faculty Course
Offered by: Engineering - Dean's Office

FACC 100 Introduction to the Engineering Profession.
(1) (1-0-2) Introduction to engineering practice; rights and code of conduct for students; professional conduct and ethics; engineer's duty to society and the environment; sustainable development; occupational health and safety; overview of the engineering disciplines taught at McGill.

FACC 200 Industrial Practicum 1.
(0) (Coordinated by the Engineering Career Centre.) (Prerequisite: Permission of Faculty.) Four months of full-time remunerated engineering-related work in private or public practice.

FACC 201 Industrial Practicum 2.
(0) (Coordinated by the Engineering Career Centre.) (Prerequisites: FACC 200 and permission of Faculty.) Four months of full-time remunerated engineering-related work in private or public practice.

FACC 202 Industrial Practicum 3.
(0) (Coordinated by the Engineering Career Centre.) (Prerequisites: FACC 201 and permission of Faculty.) Four months of full-time remunerated engineering-related work in private or public practice.

FACC 203 Industrial Practicum 4.
(0) (Coordinated by the Engineering Career Centre.) (Prerequisites: FACC 202 and permission of Faculty.) Four months of full-time remunerated engineering-related work in private or public practice.

FACC 204 Industrial Practicum 5.
(0) (Coordinated by the Engineering Career Centre.) (Prerequisites: FACC 203 and permission of Faculty.) Four months of full-time remunerated engineering-related work in private or public practice.

FACC 205 Industrial Practicum 6.
(0) (Coordinated by the Engineering Career Centre.) (Prerequisites: FACC 204 and permission of Faculty.) Four months of full-time remunerated engineering-related work in private or public practice.

FACC 220 Law for Architects and Engineers.
(3) (3-0-6) Aspects of the law which affect architects and engineers. Definition and branches of law; Federal and Provincial jurisdiction, civil and criminal law and civil and common law; relevance of statutes; partnerships and companies; agreements; types of property, rights of ownership; successions and wills; expropriation; responsibility for negligence, servitudes/easements, privileges/liens, hypothecs/ mortgages; statutes of limitations; strict liability of architect, engineer and builder; patents, trade marks, industrial design and copyright; bankruptcy; labour law; general and expert evidence; court procedure and arbitration.

FACC 400 Engineering Professional Practice.
(1) (1-5-0.5) (Prerequisites: FACC 100 or BREE 205 and at least 80 program credits (B.Eng./B.S.E. students in the Faculty of Engineering) or 45 program credits (B.Eng./Biresource students).) (Restriction: Not open to students who have taken MIME 221.) Laws, regulations and
MECH-Mechanical Engineering

MECH 201 Introduction to Mechanical Engineering.

MECH 210 Mechanics 1.
(2) (2-1-3) Static equilibrium of particles and rigid bodies. Beams, trusses, frames and machines. Concept of work and energy. Static equilibrium and stability.

MECH 220 Mechanics 2.
(4) (4-1-7) (Prerequisites: MECH 210, MATH 262.) Pre-/Co-requisite: MATH 263.) Kinematics of particles and rigid bodies. Particle dynamics: force-momentum and work-energy approaches. Kinematics and kinetics of rigid bodies.

MECH 240 Thermodynamics 1.
(3) (3-1-5) Thermodynamic systems and properties. First law of thermodynamics: energy, work and heat. State principle, p-v-T surfaces, phase equilibrium, ideal gas model. Second law of thermodynamics, entropy, exergy analysis. Energy analysis applied to steady and transient engineering systems including heat engines, refrigerators and heat pumps, air compressors.

MECH 260 Machine Tool Laboratory.
(2) (1-3-2) Basic machine tool operations, numerical control of machine tools, and metrology. The use of hand tools, and sheet metal work. Introduction to rapid prototyping and nontraditional machining methods. Extensive laboratory hands-on exercises.

MECH 261 Measurement Laboratory.
(2) (2-2-2) (Restriction: Civil Engineering students) Basic experimental laboratory measurements, such as measurement of strain, pressure, force, position, and temperature.

MECH 262 Statistics and Measurement Laboratory.
(3) (3-2-4) Introduction to probability: conditional probability, binomial and Poisson distributions, random variables, laws of large numbers. Statistical analysis associated with measurements; regression and correlation. Basic experimental laboratory techniques, including the measurement of strain, pressure, force, position, and temperature.

MECH 289 Design Graphics.
(3) (3-3-3) (Restriction: Students must be in Year 1 (U1) or higher.) Preliminary concepts of design, including free-hand sketching; fundamentals of geometry construction; and technology of object representation.

MECH 292 Conceptual Design.
(3) (1-3-5) (Prerequisites: MECH 260 and MECH 289 or MECH 291. Pre-/Co-requisite: CIVE 207) Introduction to design. Problem formulation; idea generation; feasibility study; preliminary design; design; analysis, design evaluation, project management, and optimal design.

MECH 293 Applied Electronics and Instrumentation.
(3) (3-2-4) (Prerequisites: MECH 261 or MECH 262, MATH 263.) Discrete and integrated components, both analogue and digital. Characteristics of passive elements. Semiconductors, amplifiers, filters, oscillators, modulators, power supplies and nonlinear devices. Introduction to digital electronics. Transducer/signal conditioner interfacing considerations.

MECH 309 Numerical Methods in Mechanical Engineering.
(3) (3-1-5) (Prerequisites: MATH 263, MATH 271, COMP 208.) Numerical techniques for problems commonly encountered in Mechanical Engineering are presented. Chebyshev interpolation, quadrature, root-finding equations in one or more variables, matrices, curve fitting, splines and ordinary differential equations. The emphasis is on the analysis and understanding of the problem rather than the details of the actual numerical program.

MECH 314 Dynamics of Mechanisms.
(3) (3-1-5) (Prerequisites: MECH 220.) First principles of analysis: motion; position; displacement; velocity; acceleration; force; inertia and its effects. Kinematic and dynamic analysis of rigid bodies in pure rotation and in pin-connected systems; dynamic balance. Rigid bodies in rolling contact; planetary gear-trains. Bodies in sliding contact; lower and higher sliding pairs.

MECH 315 Mechanics 3.

(3) (3-1-5) (Prerequisite: CIVE 207) Modern phenomenological theories of the behaviour of engineering materials. Stress and strain concepts and introduction to constitutive theory. Applications of theories of elasticity and thermoelasticity. Introduction to finite element stress analysis methods.

MECH 331 Fluid Mechanics 1.
(3) (3-1-5) (Prerequisites: MECH 210. Pre-/Co-requisites: MECH 220, MECH 240, MATH 271.) Physical properties of fluids. Kinematics and dynamics of fluid flow: stress in a continuum, rates of strain, rotation. Control volume analysis; conservation of mass, linear momentum and energy; Euler and Bernoulli equations; Flow measurement. Dimensional analysis and dynamical similarity. Laminar and turbulent flow in pipes and boundary layers.

MECH 341 Thermodynamics 2.

MECH 346 Heat Transfer.
(3) (3-1-5) (Prerequisites: MECH 240 or BREE 301, MECH 331 or BREE 305, MATH 271 or BREE 319) Basic concepts and overview. Steady and unsteady heat conduction. Film Theory. Convective heat transfer: governing equations; dimensionless parameters; analogy between momentum and heat transfer. Design correlations for forced, natural, and mixed convection. Heat exchangers. Radiative heat transfer: black- and gray-body radiation; shape factors; enclosure theory. Thermal engineering design project.

MECH 362 Mechanical Laboratory 1.
(2) (0-3-3) (Prerequisites: MECH 261 or MECH 262 or BREE 216) Experiments will be performed in four areas: MECH 240 Thermodynamics, MECH 315 Vibrations, MECH 331 Fluid Mechanics 1, and MECH 346 Heat Transfer. Students should sign up to do experiments in one or more areas the term following the completion of one or more of the above courses. Students will not formally register for this course until the term in which they will complete all of the experiments.

MECH 383 Applied Electronics and Instrumentation.
(3) (3-2-4) (Prerequisites: MECH 261 or MECH 262, MATH 263.) Discrete and integrated components, both analogue and digital. Characteristics of passive elements. Semiconductors, amplifiers, filters, oscillators, modulators, power supplies and nonlinear devices. Introduction to digital electronics. Transducer/signal conditioner interfacing considerations.
MECH 393 Machine Element Design.
(3) (3-1-5) (Prerequisites: MECH 260 and MECH 289 and
CIVE 207. Pre-corequisites: MECH 292 and MECH 314
and MIME 260.) The design of mechanical systems for strength
requirements, following the engineering design process. Static
and fatigue failure prevention. Students form groups to work on
a design project.

MECH 403D1 (3), MECH 403D2 (3) Thesis (Honours).
(0-6-12) (Prerequisite: A minimum of 60 program credits.)
(Students must register for both MECH 403D1 and MECH
403D2.) (No credit will be given for this course unless both
MECH 403D1 and MECH 403D2 are successfully completed
in consecutive terms) This course, together with MECH 404,
involves a research project containing both engineering theory
and design components, and requiring a theoretical and/or
experimental investigation. Students are supervised by the
course instructor and mentored by one or more staff members. The work culminates with the submission of a thesis.

MECH 403N1 (3), MECH 403N2 (3) Thesis (Honours).
(0-6-12) (Prerequisite: A minimum of 60 program credits.)
(Students must also register for MECH 403N2) (No credit will be
given for this course unless both MECH 403N1 and MECH
403N2 are successfully completed in a twelve month period)
This course, together with MECH 404, involves a research
project containing both engineering theory and design
components, and requiring a theoretical and/or experimental
investigation. Students are supervised by the course instructor
and mentored by one or more staff members. The work culminates with the submission of a thesis.

MECH 404 Honours Thesis 2.
(3) (0-6-3) (Corequisite: MECH 403) This course is part of
the same thesis project as course MECH 403.

MECH 419 Advanced Mechanics of Systems.
(3) (3-0-9) (Prerequisites: MECH 309 or MATH 317, MECH
315. Pre-/Co-requirest: MECH 331) Modelling of physical
systems by lumped-parameter linear elements. Unified treatment
of mechanical, fluid, electrical, and thermal devices and
systems. State space, formulation of state equations, time
response. Frequency-response methods. Dynamic response
specifications. Stability. Elementary feedback control systems.
Extensive use of engineering examples and software tools.

MECH 420 Fluid Mechanics 2.
(3) (3-0-9) (Prerequisites: MECH 331 and MECH 240.)
Review of thermodynamics of gases, one-dimensional isentropic
Flow in constant area ducts with friction and heat exchange.
Compressible irrotational flow. Oblique shock waves and
Prandtl-Meyer expansion. Supersonic aerodynamics and wing theory.

MECH 447 Combustion.
(3) (3-0-6) (Prerequisite: MECH 240) Equilibrium analysis of
reacting systems. Hugoniot analysis, flame propagation
mechanisms, introduction to chemical kinetics, models for
laminar flame propagation, ignition, quenching, flammability
limits, turbulent flames, flame instability mechanisms,
detonations, solid and liquid combustion.

MECH 463D1 (3), MECH 463D2 (3) Mechanical Engineering Project.
(1-3-5) (Prerequisites: CCOM 206 or EDEC 206, MECH
393) (Students must register for both MECH 463D1 and
MECH 463D2.) (No credit will be given for this course unless both
MECH 463D1 and MECH 463D2 are successfully
completed in consecutive terms) Team project work typically
involving the design, fabrication, verification, and application
of a mechanical device/system, or experimental facility. The
project work is complemented with lectures in the Fall term on
topics related to design and management of design projects.
Emphasis is on the completion of a project of professional
quality.

MECH 494 Honours Design Project.
(3) (0-6-3) (Prerequisite: MECH 292) (Restriction:
Mechanical Engineering Honours students.) An advanced design
project course with emphasis on analytical solutions,
performance prediction and validation, and planning for
production. Students are supervised by the course instructor
and mentored by one or more staff members.

MECH 497 Value Engineering.
(3) (0-8-1) (Prerequisites: MECH 393 and completion of 45
credits) Value Engineering is an in-depth analysis of an
industrial product or process with a view to improving its
design and/or performance to increase its worth. This is a
workshop type of course. Projects will be supplied by industrial
firms and students will work in teams with industrial personnel.

MECH 498 Interdisciplinary Design Project 1.
(3) (1-2-6) Completion of an individual project on an
interdisciplinary theme with emphasis on a balanced combination
on analysis and synthesis.

MECH 499 Interdisciplinary Design Project 2.
(3) (1-2-6) (Corequisite: MECH 498.) The individual project
initiated in MECH 498 is continued and finalized in this course.

MECH 500 Selected Topics in Mechanical Engineering.
(3) (3-0-6) A course to allow the introduction of new topics in
Mechanical Engineering as needs arise, by regular and visiting
staff.

MECH 501 Special Topics: Mechanical Engineering.
(3) (3-0-6) A course to allow the introduction of new topics in
Mechanical Engineering as needs arise, by regular and visiting
staff.

MECH 502 Topics in Mechanical Engineering.
(3) A course to allow the introduction of new topics in
Mechanical Engineering as needs arise, by regular and visiting
staff.

MECH 513 Control Systems.
(3) (3-0-6) (Prerequisite: MECH 412 or MECH 419.)
(Restriction: Not open to students who have taken MECH 413.)
Stability: Lyapunov, Routh-Hurwitz and Nyquist criteria.
Root-locus design of feedback control systems. Controller
design based on polynomial methods and internal model principle.
Frequency-response controller design. State feedback control.
Controllability, observability, LQR, full- and reduced-order
observer design. Robust control design. Optimization problems
in control.

MECH 515 Unsteady Gasodynamics 1.
(3) (3-0-6) (Prerequisites: MECH 341, MECH 430.)
(Restriction: Not open to students who have taken MECH 615)
Fundamentals of unsteady gasodynamics. Shock and detonation waves
in gases and condensed material. Condensed explosives:
hydrodynamic theory, equations of state, initiation. Shock
interactions. Blast wave theory, similarity methods, blast
scaling.
MECH 516 Computational Gasdynamics.
(3) (3-0-6) (Prerequisite(s): MECH 430 or permission of instructor) Fundamentals of computational fluid dynamics. Numerical methods for hyperbolic conservation laws: first- and higher-order upwind schemes; monotonicity and Godunov theorem; total-variation diminishing schemes; Riemann solvers; treatment of source terms; multi-dimensional methods. Introduction to grid generation and adaptation. Methodology for the comparison of numerical and experimental results.

MECH 522 Production Systems.
(3) (3-0-6) (Prerequisite: Permission of the instructor) Characteristics of production systems. System boundaries, input-output, feedback time-lag effects, dynamics of production systems. Design for manufacturability. Process planning, process/machine tool selection, break-even analysis, CAPP. Production planning, scheduling and control of operations; quality management. Competitive strategies; FMS, CIM. Hands-on experience with production modelling and industrial simulation software.

MECH 524 Computer Integrated Manufacturing.
(3) (3-0-6) (Prerequisite: Permission of the instructor) A study of the present impact of computers and automation on manufacturing. Computer-aided systems. Information modelling. Information system structures. Study of several types of production systems. Integration issues: inter-and intra-enterprise. Laboratory experience with manufacturing software systems.

MECH 526 Manufacturing and the Environment.

MECH 528 Product Design.
(3) (3-0-6) (Prerequisite (Undergraduate): Permission of the instructor) An overview of present day production machines and systems with special emphasis on automation, computer control and integration techniques. Material handling, automatic inspection, process monitoring, maintenance. Socio-economic and environmental issues. Laboratory experience with factory simulation.

MECH 530 Mechanics of Composite Materials.

MECH 531 Aerelasticity.
(3) (3-0-6) (Prerequisite (Undergraduate): MECH 419 or MECH 315 and MECH 533) (Prerequisite (Graduate): MECH 533) Wing divergence using strip-theory aerodynamics. Effect of aircraft flexibility on the control and stability. Flutter calculations for two-dimensional wings with discussion of three-dimensional effects. Some examples of aerelastic instability, and the relevant analysis of non-aeronautical problems.

MECH 532 Aircraft Performance, Stability and Control.
(3) (3-0-6) (Prerequisite (Undergraduate): MECH 412 or MECH 419, MECH 533) (Prerequisite (Graduate): MECH 533) Aircraft performance criteria such as range, endurance, rate of climb, maximum ceiling for steady and accelerated flight. Landing and take-off distances. Static and dynamic stability in the longitudinal (stick-fixed and stick-free) and coupled lateral and directional modes. Control response for all three modes.

MECH 533 Subsonic Aerodynamics.
(3) (3-1-5) (Prerequisite (Undergraduate): MECH 331) (Prerequisite (Graduate): MECH 533) Kinematics, equations of motion; vorticity and circulation, conformal mapping and flow round simple bodies. Two-dimensional flow round aerofoils. Three-dimensional flows; high and low aspect-ratio wings; airfoils. Wind tunnel interference. Similarity rules for subsonic irrotational flows.

MECH 534 Air Pollution Engineering.
(3) (3-0-6) (Prerequisite (Undergraduate): MECH 331, MECH 341) Pollutants from power production and their effects on the environment. Mechanisms of pollutant formation in combustion. Photochemical pollutants and smog, atmospheric dispersion. Pollutant generation from internal combustion engines and stationary power plants. Methods of pollution control (exhaust gas treatment, absorption, filtration, scrubbers, etc.).

MECH 535 Turbomachinery and Propulsion.

MECH 536 Aircraft Structures.
(3) (3-0-6) (Prerequisite: MECH 521 or equivalent) (Restriction: Not open to students who have taken MECH 432.) Aircraft structural components and loads. Bending, shear and torsion of thin-walled open and closed beams. Structural idealization. Wing spars and box beams. Wings bending, torsion and shear, tapered wings, deflection, cut-outs. Fuselage frames and wing ribs, principle of stiffener/web construction. Analysis of riveted, bolted and adhesive joints. Sandwich structures analysis.

MECH 537 High-Speed Aerodynamics.

MECH 538 Unsteady Aerodynamics.
(3) (3-0-6) (Prerequisite (Undergraduate): MECH 533) Fundamental equations of unsteady compressible flows in fixed or moving reference frames. Unsteady flows past bodies in translation and having oscillatory motions. Oscillations of cylindrical pipes or shells subjected to internal flows. Vortex theory of oscillating aerofoils in incompressible flows. Theodorsen's method. Unsteady compressible flow past oscillating aerofoils.

MECH 539 Computational Aerodynamics.

MECH 541 Kinematic Synthesis.
MECH 542 Spacecraft Dynamics. (3) (3-0-6) (Prerequisite (Undergraduate): MECH 220. Corequisite: MECH 412 or MECH 419) Review of central force motion; Hohmann and other coplanar transfers; perturbation of the orbital plane, patched conic method. Orbital perturbations due to the earth's oblateness, solar-lunar attraction, solar radiation pressure and atmospheric drag. Attitude dynamics of a rigid spacecraft; attitude stabilization and control; attitude manoeuvres; large space structures.


MECH 544 Processing of Composite Materials. (3) (3-0-6) (Prerequisite: MECH 530 or permission of instructor.) (Restriction: This course requires the use of a finite element software, so experience with finite elements is recommended.) Composite processing science basic principles. Reinforcement properties; permeability, compaction. Resin properties; curing, viscosity, shrinkage. Heat transfer and cure kinetics; cure cycle optimization. Resin flow; infusion, thickness variations, fiber volume fraction distribution. Residual stresses; tool-part interaction, warpage control, spring-back, tool design. Thermoplastic composites; crystallization control, melting and consolidation.


MECH 546 Finite Element Methods in Solid Mechanics. (3) (3-0-6) (Prerequisites: MECH 315 or MECH 419, and MECH 321, or instructor's permission.) (Restriction: Not open to students who have taken MECH 645.) Discrete systems; variational formulation and approximation for continuous systems; direct and variational methods of element formulation in 1-2- and 3 dimensions; formulation of isoparametric finite elements; plate and shell elements; finite element method for static analysis, vibration analysis and structural dynamics; introduction to nonlinear problems.

MECH 547 Mechanics of Biological Materials. (3) (3-1-5) (Prerequisite: MECH 321 or equivalent course or permission from instructor.) Mechanics of proteins (collagen, keratin), polysaccharides (cellulose, chitin), cells, skin, bone, teeth, seashells, insect and arthropod cuticles. Emphasis on microstructure-property-function relationships and on multiscale approach. State-of-the-art experimental and modelling techniques. Self-healing and adaptive biological materials.

MECH 548 Cellular Materials in Natural and Engineering Structures. (3) (3-0-6) (Prerequisite: MECH 321 or permission of instructor) Overview of hierarchical solids exhibiting cellular structure. Cell size, shape and topology of bending and stretching dominated materials, including periodic microcruss lattice, plant cellular tissue and trabecular bone. Theories for modelling the mechanics and the physical properties; design and optimization of multifunctional cellular solids for ultralight aerospace and biomedical applications.


MECH 553 Design and Manufacture of Microdevices. (3) (3-0-6) (Prerequisite: Instructor's permission.) Introduction to microelectromechanical systems (MEMS). Micromachining techniques (thin-film deposition; lithography; etching; bonding). Microscale mechanical behaviour (deformation and fracture; residual stresses; adhesion; experimental techniques). Materials- and process-selection. Process integration. Design of microdevice components to meet specified performance and reliability targets using realistic manufacturing processes.


MECH 557 Mechatronic Design. (3) (3-1-5) (Prerequisite (Undergraduate): ECSE 461, MECH 383 and (MECH 412 or MECH 419)) Team project course on the design, modelling, model validation, and control of complete mechatronic systems, constructed with modern sensors, actuators, real-time operating systems, embedded controllers, and intelligent control.

MECH 561 Biomechanics of Musculoskeletal Systems. (3) (3-0-6) (Prerequisite (Undergraduate): MECH 321 and (MECH 315 or MECH 419)) The musculoskeletal system; general characteristics and classification of tissues and joints. Biomechanics and clinical problems in orthopaedics. Modelling and force analysis of musculoskeletal systems. Passive and active kinematics. Load-deformation properties of passive connective tissue, passive and stimulated muscle response. Experimental approaches, case studies.

MECH 562 Advanced Fluid Mechanics. (3) (3-0-6) (Prerequisite: MATH 271 or permission of instructor.) Conservation laws, control volume analysis, Navier stokes equations, dimensional analysis and limiting forms of N-S equation, laminar viscous flows, boundary layer theory, invidious potential flows, lift and drag, introduction to turbulence.

MECH 563 Biofluids and Cardiovascular Mechanics. (3) (3-0-6) (Prerequisites: CHEE 314 or MECH 331 or permission of instructor) (Restriction: Not open to students who have taken CHEE 563) Basic principles of circulation including vascular fluid and solid mechanics, modelling techniques, clinical and experimental methods and the design of cardiovascular devices.

MECH 565 Fluid Flow and Heat Transfer Equipment. (3) (3-0-6) (Prerequisite (Undergraduate): MECH 240, MECH 309 or MATH 317, MECH 331, MECH 341, MECH 346 or permission of the instructor.) Pipes and piping systems, pumps, and valves. Fans and building air distribution systems. Basic thermal design methods for fins and heat exchangers. Thermal design of shell-and-tube and compact heat exchangers.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.

Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.

Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
exchangers.

MECH 566 Fluid-Structure Interactions.
(3) (3-0-6) (Prerequisite: MECH 315 or MECH 419 or equivalent.) Pipes and cylindrical shells containing flow: fundamentals and applications in ocean mining, Coriolis mass-flow meters, heat exchangers, nuclear reactors and aircraft engines; chaos. Cylinders in axial flow and in cross-flow; vortex-shedding and galloping. Cylinder arrays in cross-flow; fluidelastic instabilities. Ovalling of chimneys.

MECH 572 Introduction to Robotics.
(3) (3-0-6) (Prerequisites: Undergraduate; MATH 271 and MECH 220 or permission of instructor) (Restriction: Not open to students who have taken MECH 573) Overview of the field of robotics. Kinematics, statics, singularity analysis and workspace of serial robots with decoupled architecture. Direct and inverse kinematics and dynamics. Algorithms for manipulator kinematics and dynamics.

MECH 573 Mechanics of Robotic Systems.
(3) (3-2-4) (Prerequisite: MECH 309 or MATH 317, and MECH 572 or permission of the instructor.) (Since the course is open to both undergraduate and graduate students, and B- is the minimum passing mark for graduate students, this minimum mark will be relaxed for undergraduates. The regulations applicable to undergraduates will apply accordingly.) Manipulator performance and design. Pick-and-place and continuous-path operations. Computation of rigid-body angular velocity and acceleration from point-data measurements. Inverse kinematics of serial manipulators with coupled architectures; kinetostatics of multifingered hands and walking machines. Kinematics and dynamics of parallel manipulators and wheeled mobile robots.

MECH 576 Geometry in Mechanics.
(3) (3-2-4) (Prerequisites: Undergraduate; MATH 271, MECH 220, MECH 289 and MECH 314 or permission of the instructor.) Homogeneous vectors related to projective geometry and to linear, vector, matrix and symbolic algebra. Applications in mechanics. Pluecker and dual quaternions in statics and robot kinematics. Reducing systems of polynomials. Camera aided metrology. Case studies of solved and unsolved problems.

MECH 577 Optimum Design.
(3) (3-0-6) (Prerequisite: MECH 309 or MATH 317 or permission of the instructor) The role of optimization within the design process: Design methodology and philosophy. Constrained optimization: The Kuhn-Tucker conditions. Techniques of linear and non-linear programming. The simplex and the complex methods. Sensitivity of the design to manufacturing errors. Robustness of the design to manufacturing and operation errors.

MECH 578 Advanced Thermodynamics.
(3) (3-0-6) Review of classical mechanics; Boltzmann statistics, thermodynamics of ideal gases; Fermi-Dirac and Bose-Einstein statistics, Gibbsian ensembles; elementary kinetic theory of transport processes, Boltzmann equation, Boltzmann H-theorem and entropy, KBG approximation, discussion on the solution of Boltzmann equation; Maxwell transport equations, derivation of Navier Stokes equations.

MECH 579 Multidisciplinary Design Optimization.
(3) (3-0-6) (Prerequisites: MECH 309 or MATH 317.) A comprehensive introduction to important algorithms in sensitivity analysis and multidisciplinary design optimization of large systems. Topics include: unconstrained and constrained optimization, sensitivity analysis, gradient-free optimization, multi-objective optimization, and various multidisciplinary algorithms and approaches for design optimization.

MECH 593 Design Theory and Methodology.
(3) (3-0-6) (Prerequisite: Permission of instructor.) The overall design process is scrutinized within a discipline-independent framework. The nature of design as a creative engineering activity. The polarity of design. The role of knowledge in design. Design representation. History of design and design schools. Design trends in the 21st century. Design engineering schools. Design models.

MIME 200 Introduction to the Minerals Industry.
(3) (3-3-3) Economic importance of the minerals industry. Mining: legislation, regulations, criteria for exploiting ore: mining methods, equipment. Extractive metallurgy: mineral processing, hydrometallurgy, pyrometallurgy. Environmental protection.

MIME 203 Mine Surveying.
(2) (3-0-0) (Prerequisite: MIME 200 or permission of instructor) Introduction to surveying. Definitions and mathematics. Measurement of levels, angles and distances. Fundamentals of control surveying. Underground mine surveying. GPS and laser applications.

MIME 209 Mathematical Applications.
(3) (3-2-4) Introduction to stochastic modelling of mining and metallurgical engineering processes. Description and analysis of data distributions observed in mineral engineering applications. Modelling with linear regression analysis. Taylor series application to error and uncertainty propagation. Metallurgical mass balance adjustments.

MIME 212 Engineering Thermodynamics.

MIME 221 Engineering Professional Practice.

MIME 250 Introduction to Extractive Metallurgy.
(3) (3-2-4) (Corequisite: MIME 202.) Introduction to physical, hydrochemical, electrochemical and thermochemical processing in the production of metals and materials; description of the industries, basic processing concepts, unit operations and an introduction to environmental exchanges. Size reduction and classification, particle separation, stoichiometric and mass balance calculations, chemical equilibria, aqueous processing, smelting and refining.

MIME 260 Materials Science and Engineering.
(3) (2-2-5) Structure properties and fabrication of metals, polymers, ceramics, composites; engineering properties: tensile, fracture, creep, oxidation, corrosion, friction, wear; fabrication and joining methods; principles of materials selection.

MIME 261 Structure of Materials.
(3) (3-2-4) Classification of materials, electrons in atoms, molecules and solids, bonding in solids, elements of crystallography, common crystal structures, atoms positions, directions and planes in crystal structures, defects in crystalline solids, point defects, dislocations, structure of polycrystalline materials, grains, grain boundaries, non-crystalline solids.

MIME 262 Properties of Materials in Electrical Engineering.
(3) (3-1-5) (Restriction: Not open to students who have taken or are taking ECSE 212.) Properties of a material continuum and crystalline state; properties of atoms in materials; conduction electrons in materials; electronic properties of semiconductors and metals; magnetic and thermal properties of materials; applications of electronic materials in semiconductor technology, recording media and transducers.
MIME 280 Industrial Training 1.
(2) (Prerequisites: Department permission required. Must have completed a minimum of 40 credits of the core program.) (Restriction: Open only to McGill students.) Four-month training period in a materials engineering industrial or research environment. Work term report due upon completion.

MIME 290 Industrial Work Period 1.
(2) (Prerequisites: MIME 200 or MIME 203) A four-month work period in the mineral industry, to expose the student to an industrial environment. Candidates will receive basic industrial training. A complete report must be submitted at the end of the term.

MIME 291 Industrial Work Period 2.
(2) (Prerequisite: MIME 290) (This course in the Faculty of Engineering is open only to McGill students.) A four-month industrial work period in a mining company, research laboratory or government agency. The student will receive formal industrial training in a technical position. A complete report must be submitted at the end of the term.

MIME 308 Social Impact of Technology.
(3) (3-0-6) (Enrolment encouraged by students outside the Faculty of Engineering) Critical examination of the socio-economic costs and benefits of technology, case studies of old engineering works and new technologies. The integration of applied ethics and engineering practice, analysis of basic concepts of technology assessment, the inter-connected processes of risk assessment, management, and communication.

MIME 310 Engineering Economy.
(3) (3-1-5) Introduction to the basic concepts required for the economic assessment of engineering projects. Topics include: accounting methods, marginal analysis, cash flow and time value of money, taxation and depreciation, discounted cash flow analysis techniques, cost of capital, inflation, sensitivity and risk analysis, analysis of R and D, ongoing as well as new investment opportunities.

MIME 311 Modelling and Automatic Control.
(3) (3-2-4) (Prerequisite: MIME 356) Mass and energy conservation laws. Dynamic versus steady state models, dynamic behaviour of first and higher order metallurgical systems, linear and nonlinear models, interacting and noninteracting systems. Laplace domain dynamics and transfer functions. Feedback control, control valves and controllers, transducers. Feedback-feedforward control, introduction to cascade, adaptive and statistical control strategies. Digital computer control, instruments and interfaces.

MIME 313 Mining Science and Technology Seminar.
(1) (1-0-2) (Prerequisites: MIME 322 and MIME 333.) Review of mining-related technological advances in fragmentation, materials handling, processing, ventilation and ground control.

MIME 317 Analytical and Characterization Techniques.
(3) (2-1-6) (Prerequisite: MIME 261) Bulk, surface and microanalytical techniques for materials characterization. Bulk analysis: spectrophotometry using UV, visible, flame and atomic absorption, x-ray diffraction and x-ray fluorescence. Surface and microanalysis: infrared spectroscopy, scanning and transmission electron microscopy, Auger electron and x-ray photoelectron spectroscopy.

MIME 320 Extraction of Energy Resources.
(3) (3-0-6) The extraction of energy resources, i.e. coal, gas, oil and tar sands. After a brief geological review, different extraction techniques for these substances will be discussed. Emphasis on problems such as northern mining and offshore oil extraction with reference to Canadian operations. Transportation and marketing.

MIME 322 Rock Fragmentation.

MIME 323 Rock and Soil Mass Characterization.
(3) (3-3-3) (Prerequisite (Undergraduate): EPSC 221 and MIME 200) Characteristics of soil and rock masses and the stability of mine workings. Mechanical properties of rocks and soils related to physical/chemical properties. Characterization of rock mass discontinuities. Laboratory and in-situ techniques to define mechanical properties of soils, rocks and discontinuities. Permeability and groundwater flow principles. In-situ stresses and their measurement. Rock mass quality and classification systems.

MIME 325 Mineral Industry Economics.
(3) (3-2-4) (Prerequisite: MIME 310) Geographical distribution of mineral resources. Production, consumption and prices of minerals. Market structure of selected minerals. Economic evaluation aspects: grade-tonnage considerations; capital and operating cost estimation; assessment of market conditions; estimation of revenue; taxation; sensitivity and risk analyses; economic optimization of mine development and extraction.

MIME 333 Materials Handling.
(3) (3-3-3) (Prerequisite: MIME 200) Physical and mechanical characteristics of materials related to loading, transport and storage. Dynamics of particles, systems and rigid bodies, mass-acceleration, work-energy, impulse-momentum. Types and selection of excavation and haulage equipment. Layout of haul roads. Rail transport. Conveyor belts and chain conveyors. Mine hoists. Layout of mine shafts.

MIME 337 Electrotechnology.
(2) (3-1-2) Emphasize role of electrical equipment in the mining, metals and materials industry sectors. Operating theory and technical standards of prime electrical equipment, transformers, motors, generators, rectifiers, variable speed drives, circuit breakers, starters. DC and AC theory for circuit components, resistance, capacitance, inductance and impedance. Distribution system single line diagrams.

MIME 340 Applied Fluid Dynamics.

MIME 341 Introduction to Mineral Processing.
(3) (2-1-6) (Prerequisite (Undergraduate): MIME 200 or MIME 250) Theory and practice of unit operations including: size reduction-crushing and grinding; size separation-screening and classification; mineral separation-flotation, magnetic and gravity separation. Equipment and circuit design and selection. Mass balancing. Laboratory procedures: grindability, liberation, magnetic and gravity separation, flotation and solid-liquid separation.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

- Denotes courses taught only in alternate years.
-† Professional Practice (Stage) in Dietetics involving special prerequisites.
-‡ Indicates that departmental approval/permission must be obtained by a student prior to registration.
-† Denotes courses not available as Education electives.
-exual Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
-‡ Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
-© Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
MIME 345 Applications of Polymers.
(3) (3-1-5) (Prerequisite: MIME 261 or permission of instructor.) Applications of synthetic and natural polymers and composites as engineering materials, e.g., in biomedical, automotive and aerospace applications. Thermoplastics, thermostets and elastomers. Animal and plant origin, degradable and non-degradable polymers. Particulate and fibre reinforced polymer matrix composites. Manufacturing routes, and characterization tools for their physical, thermal, mechanical and chemical properties.

MIME 350 Extrusive Metallurgical Engineering.
(3) (3-1-5) (Prerequisites: MIME 200 or MIME 250, MIME 212) Principle non-ferrous base-metal pyrometallurgical extraction processes, relevant thermodynamics, heat and mass balances, transport phenomena (copper, nickel, lead, zinc, aluminum, magnesium). Ores, gangue, fuels, slag, fluxes, recovery, refining, minor elements, byproducts and the environment. Roasting, drying, smelting, converting, reverberatory furnaces, flash furnaces, continuous and batch operations, injection practices and oxygen enrichment. Simulation, modelling, control and optimization.

MIME 352 Hydrochemical Processing.
(3) (3-1.5-4.5) (Prerequisites: CHEM 233, MIME 212, MIME 200 or MIME 250) (Cerequise: MIME 356) Analysis and description of dissolution (leaching), solute separation (solvent extraction, ion exchange, carbon adsorption) and deposition operations (precipitation, crystallization, electrosynthesis) in aqueous reaction media as these apply to: (i) the hydrometallurgical extraction of metals from primary/secondary sources; (ii) the treatment of effluents and (iii) the production of inorganic materials.


MIME 360 Phase Transformations: Solids.
(3) (3-1-5) (Pre/Corequisite: MIME 212.) (Prerequisite: MIME 260 or MIME 261.) Free energy (equilibrium) and kinetic (non-equilibrium) considerations, phase diagrams and TTT diagrams, solid state diffusion, diffusional (nucleation and growth) and shear (martensitic) transformations.

MIME 362 Mechanical Properties.

(3) (3-1-5) (Prerequisites: MIME 261, MATH 263, MATH 264) Electrons as particles and waves. Schrodinger's Equation, electrical and thermal conductivity, semiconductors, semiconductor devices, fundamentals of magnetism, superconductivity and superconductive materials, dielectric materials, optical properties of materials, LASERs and waveguides. Advanced materials and their technological applications.

MIME 380 Industrial Training 2.
(2) (Prerequisite: MIME 280) (Restriction: Open only to McGill students.) One four-month work period in industry. Work term report due upon completion.

MIME 392 Industrial Work Period 3.
(2) (Prerequisite: 75 credits including MIME 291) A four-month industrial work period in a mining company, research laboratory, or government agency. Based on the experience gained during the first two work periods, the student may be asked to undertake more challenging technical tasks. A complete report must be submitted at the end of the term.

MIME 410 Research Project.
(3) (0-6-3) (Prerequisite: Recommendation of instructor) A research project will be carried out, usually in groups, under the guidance of a staff member. A technical report will be prepared at the end and a formal presentation will be made on the research topic.

MIME 419 Surface Mining.

MIME 420 Feasibility Study.
(3) (1-2-6) (Prerequisite (Undergraduate): MIME 333, MIME 419, MPMC 421) This course consists of a case study exercise in the application of the specialist skills which the student has developed in the mining engineering program. The objective is to combine these skills in carrying out a professional appraisal of the technical feasibility and economic viability of developing a mineral deposit. Students are required to prepare a professional level report and present seminars on particular aspects of the feasibility analysis.

MIME 422 Mine Ventilation.
(3) (3-3-3) (Prerequisite: MIME 340) (Restriction: Not open to students who have taken MPMC 422.) Statutory regulations and engineering design criteria. Occupational health hazards of mine gases, dusts, etc. Ventilation system design. Natural and mechanical ventilation. Measuring and modelling air flow in ventilation networks. Calculation of head losses. Selection of mine ventilation fans. Air heating and cooling. Aspects of economics.

MIME 426 Development and Services.
(3) (3-2-4) (Prerequisite: MIME 337 or ECSE 461) Selection and design of the facilities required to start production at both surface and underground mines, based on design criteria dictated by mining plans, geography, geology and government regulations. Scheduling of development and construction. Staffing and health and safety considerations during development, construction and operations.

MIME 442 Analysis, Modelling and Optimization in Mineral Processing.
(3) (3-1.5-4.5) (Prerequisite: MIME 341) Tools and methods of process analysis, modelling and optimization using flotation and comminution examples: sampling theory and statistics, data reconciliation, statistical experimental design. Kinetic models of flotation and comminution; simulation software. Residence time distributions: tanks-in-series and axial dispersion models. Combined flotation/comminution models. Introduction to geostatistics and data mining.

MIME 452 Process and Materials Design.
(4) (1-2-9) Design of new metallurgical plants, processes, materials and products based on 3 previous core courses: materials and heat balances, metal economics, design and optimization; materials selection, design and failure problems in various materials systems.

MIME 455 Advanced Process Engineering.
MIME 456 Steelmaking and Steel Processing.
(3) (3-1-5) (Prerequisite: MIME 360. Pre/corequisite: MIME 455) The production and refining of liquid iron in the iron blast furnace, the production and refining of liquid steel, secondary refining operations, continuous casting and thermomechanical processing (hot rolling). Specially steels and newly emerging technologies (e.g. thin slab casting, direct ironmaking) are also discussed in terms of process/environment and productivity. “Downstream” topics will include cold rolling, batch and continuous annealing, and coating operations.

MIME 465 Metallic and Ceramic Powders Processing.

MIME 470 Engineering Biomaterials.
(3) (3-0-6) (Prerequisite: MIME 261 or equivalent. Permission of instructor.) Key definitions, clinical need, desired materials properties, current and future materials, materials assessments and performance. Materials of the body. Characterisation techniques for bulk and mechanical properties of biomaterials. Engineering processing and design of biomaterials.

MIME 480 Industrial Training 3.
(2) (See details listed under MIME 481) (Prerequisite: MIME 380) (Restriction: Open only to McGill students.) Four-month work period in industry. Work term report with co-op seminar due upon completion.

MIME 481 Industrial Training 4.
(2) (Prerequisites: MIME 480. Department permission required.) (Restriction: Open only to McGill students.) Four-month work period in industry. Work term report due upon completion.

MIME 484 Mining Project.
(3) (0-0-9) (Prerequisites: MPMC 328, MPMC 421) (Corequisites: MIME 419, MIME 426) A mining research project to be completed during one semester. The project must be approved by an academic advisor. A comprehensive report and a seminar presentation are required for the project.

MIME 494 Industrial Work Period 4.
(2) (Prerequisites: MIME 419, MPMC 328 and MPMC 421) A four-month industrial work period after which the student must submit a report.

MIME 512 Corrosion and Degradation of Materials.
(3) (3-1.5-4.5) (Prerequisites: MIME 261 and MIME 552 or permission of instructor.) (Restriction: Not open to students who have taken MIME 412.) Electrochemical theory of metal corrosion, Evans Diagrams, corrosion rate controlling mechanisms, mixed corroders, alloying effects, passivation. Discussion and analysis of the various forms of corrosion. Corrosion prevention methods. Oxidation of alloys-mechanisms and kinetics. Degradation of ceramic and fibrous. Case studies.

MIME 513 Mine Planning Optimization Under Uncertainty.
(3) (3-3-3) (Prerequisite: Permission of instructor.) Strategic mine planning and optimization under uncertain demand and supply. Modern optimization techniques in mine design and production scheduling. Metal supply and orebody modelling. Market forecasting and planning with flexibility. Valuing information. Stochastic mine optimization and applications in open pit and underground metal mines.

MIME 520 Stability of Rock Slopes.
(3) (3-0-6) (Prerequisite: permission of instructor.) The properties of rock masses and of structural discontinuities. Influence of geological structure on stability. Linear, non-linear, and wedge failures. Site investigations. Methods of slope stabilization.

MIME 521 Stability of Underground Openings.
(3) (3-3-3) (Prerequisite: permission of instructor) (This course in the Faculty of Engineering is open only to McGill students.) The properties of rock masses and stability classification systems. The influence and properties of geological structural features. Stability related to the design of underground openings and mining systems. Site investigations. Methods of stabilization.

MIME 522 Mineral Reserve Assessment Techniques.
(3) (3-3-3) (Prerequisite(s): COMP 208 or equivalent, MIME 209 or equivalent) Conventional and geostatistical grade and tonnage assessment techniques; applications to mineral reserve calculations, mineral deposit modelling and short-term mine planning.

MIME 524 Mineral Resources Economics.
(3) (3-0-6) (Prerequisite: MIME 310 or equivalent, or permission of instructor) Analysis of significant factors affecting mineral supply, including oil and gas. Role of governments, concept of economic rent and determinants of a mineral policy. Objectives, strategies and concerns of mining and oil and gas companies. International resource environment, commodity associations, mineral investment and trade patterns.

MIME 525 Stochastic Orebody Modelling.

MIME 526 Mineral Economics.
(3) (3-2-5) (Prerequisite: MIME 310 or equivalent) Mineral project evaluation techniques and applications. Topics covered include grade-tonnage relationships, capital and operating cost estimation techniques, assessment of mineral market conditions, taxation, discounted cash flow analysis, risk analysis, and optimization of project specifications with respect to capacity and cutoff grade.

MIME 527 Selected Topics in Mineral Resource Engineering.
(3) (1-0-8) (Prerequisite: 65 credits (if admitted as U1) or 85 credits (if admitted as U0)) A comprehensive study of selected topics in the mineral resource sector.

MIME 528 Mining Automation.
(3) (3-3-3) (Prerequisite: MIME 426) System analysis and design in the frequency domain. Review of optimization methods. Mining system modelling applied to rock cutting, materials transport, and bunkerage, pitch, yaw and roll steering of mining machines. Control and robotics: digitization, discrete systems, sensors, actuators and real time algorithms. Data communication in mines. Simulation exercises.

MIME 542 Transmission Electron Microscopy.
(3) (2-2-4) (Prerequisite: Permission of instructor) Comprehensive study of transmission electron microscopy (TEM). Theory, principles and practical application of imaging, analysis and advanced sample preparation relevant to biological and non-biological materials.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

• Denotes courses offered by the Faculty of Arts or Faculty of Science in 2011-12.
• Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
• Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
(3) (2-3-4) (Prerequisite (Undergraduate): MIME 341) The course covers three main topics: principles of separation, including data presentation, properties of recovery/ yield plots, technical and economic efficiency and identification of limits to separation; column flotation, hydrodynamics of collection and froth zones, mixing, scale-up and design, measurements and control; surface and electrochemistry, including absorption, surface charge, coagulation, electron transfer and transport, electrochemistry in plant practice.

(3) (4-2-3) (Prerequisite (Undergraduate): MIME 341) Gold recovery (as a Professional Development Seminar): methods of recovery (gravity, flotation, cyanidation), refractory gold (roasting, pressure oxidation, bacterial leaching), dissolved gold recovery (Merrill-Crowe) and activated carbon methods. Sampling: definition of errors, sample extraction, size, and processing. Mass balancing: basic considerations, definition of networks, software. Blending: auto-correlation functions, transfer functions, blending systems. Effect of feed variability.

MIME 551 Electrochemical Processing.
(3) (3-1.5-4.5) (Prerequisite: MIME 352) Characterization of aqueous, fused salt and solid electrolytes; laws of electrolysis; ion transport mechanisms; interfacial phenomena (electrolyte-electrolyte, electrode-electrolyte); reversible cells and potentials; electrode kinetics, overpotential and potential-current laws; industrial applications; electrolytic winning and refining, electroplating, surface cleaning and coating, electrodeposition and electrochemical sensors.

MIME 552 Environmental Controls in Metallurgical Plants.
(3) (3-3-3) (Prerequisites: MIME 341, 350 and 352 or permission of instructor.) (Restriction: Not open to students who have taken course 451.) Generation, characterization, and abatement of pollutants in the minerals and metals industries. Environmental regulations. Control technologies for gaseous, aqueous and solid waste streams. Heavy metal removal, arsenic control, cyanide destruction, prediction of acidic drainage, greenhouse gas effects, control of SO2 and NOx emissions, destruction of organic pollutants.

MIME 553 Impact of Materials Production.
(3) (3-0-6) (Prerequisite of instructor.) Impact on the environment of the production of major materials. Pollution control practices, emerging technologies, cost, resources and conservation. Review of flowsheets for various production methods. Analysis of the use of materials, prices, consumption, fabrication, and recycling of waste materials.

MIME 556 Sustainable Materials Processing.
(3) (3-1-5) (Prerequisite: Permission of instructor.) Sustainability in the mining and environmental impact, environmental impact indicators, materials flows, enthalpy flows, the carbon cycle, materials intensity, energy intensity, global warming potential, acidification potential, FACTOR-Two - Four and - Ten, life-cycle-inventory/assessment, end-of-pipe strategies, supply-chain and flow-sheet redesign, recycling, waste treatment and materials case studies.

MIME 558 Engineering Nanomaterials.
(3) (3-0-6) (Prerequisite: MIME 260 or MIME 261 and MIME 362 or equivalent or permission of instructor.) Aspects of manufacturing bulk-nanostructured materials. Fabrication of nanosized and nanostructured precursors (metals, ceramics, intermetallics, CNT). Reactivity, handling and safety of nano-particles. Processes developed to fabricate bulk nanostructured materials (pressing and sintering, hot pressing and extrusion, ECAP, electrodeposition, spray forming, shockwave compaction). Characterisation of nanostructures. Physical and mechanical properties of nanomaterials.

MIME 559 Aluminum Physical Metallurgy.
(3) (3-3-3) (Prerequisites: MIME 360 and MIME 362, or permission of instructor.) Crystal structure, deformation characteristics, strengthening and softening mechanisms, hot and cold working. Microstructure property relationships in aluminum alloys. Physical metallurgy of aluminum casting alloys and their uses. Properties, and physical metallurgy of aluminum wrought alloys and their industrial applications.

MIME 560 Joining Processes.
(3) (3-0-6) (Prerequisite: MIME 200, MIME 360) Physics of joining; interfacial requirements; energy sources, chemical, mechanical and electrical; homogeneous hot-joining, arc-, Mig-, Tig-, gas-, thermit- and Plasma-welding; Autogeneous hot-joining, forge-, pressure-, friction-, explosive-, electron beam- and laser-welding; Heterogeneous hot-joining, brazing, soldering, diffusion bonding; Heterogeneous cold joining, adhesives, mechanical fastening; Filler materials; joint metallurgy; Heat affected zone, non-metallic systems; joint design and economics; defects and testing methods.

MIME 561 Advanced Materials Design.
(3) (0-4-5) (Prerequisite: MIME 362 or equivalent) Advanced topics in materials design problems. Discussion and laboratory work, supplemented by detailed technical reports. Special attention is given to selection, design and failure problems in various materials systems.

MIME 562 Hot Deformation of Metals.
(3) (3-0-6) (Prerequisite (Undergraduate): MIME 360 and MIME 362) (Prerequisite (Graduate): MIME 362 or equivalent.) High temperature deformation processing of metallic materials. Topics include static and dynamic recrystallization, recovery, precipitation; effect of deformation on phase transformations and microstructural evolution during industrial processing. Mathematical modelling of microstructural evolution.

MIME 564 X-Ray Diffraction Analysis of Materials.
(3) (2-3-4) (Prerequisite: MIME 371 or equivalent) The techniques of X-ray and neutron diffraction are discussed as applied to the minerals and materials production industries. Special emphasis is placed upon automated X-ray powder diffractometry as employed for determining the structure and composition of materials. The application of X-ray techniques to studies of crystal structure, crystal orientation, residual stress, short-range order in liquid metals, phase diagram determination, order-disorder transformation and chemical analysis are presented.

MIME 565 Aerospace Metallic-Materials and Manufacturing Processes.
(3) (3-0-6) (Prerequisites: MIME 260 or MIME 261 or permission of instructor.) (Restriction: Permission of instructor required.) Integrated approach to aerospace materials, manufacturing and repair; materials and selection criteria for airframe, engines and coatings; repair concepts and technologies; application of new and emerging manufacturing technologies for the forming, joining and repair of aerospace products.

MIME 566 Texture, Structure & Properties of Polycrystalline Materials.
(3) (3-3-3) (Prerequisite: MIME 317) Concepts and quantitative methods for the description of the structure of minerals and materials are discussed. Special emphasis is placed on experimental techniques of texture measurement. Procedures are demonstrated for the control of deformation and recrystallization textures in order to obtain the properties required for industrial products. Finally, the correlation between texture and the anisotropy of elastic, plastic and magnetic properties of engineering materials is described and analyzed.

MIME 568 Topics in Advanced Materials.

MIME 569 Electron Beam Analysis of Materials.
(3) (2-3-4) (Prerequisite: MIME 317) Emphasis on operation of scanning and transmission electron microscopes. Topics covered are electron/specimen interactions, hardware description; image contrast description; qualitative and quantitative (ZAF) x-ray analysis; electron diffraction pattern analysis.
MIME 571 Surface Engineering.
(3) (3-6-6) (Prérequis: MIME 362 Mechanical Properties.)

MIME 572 Computational Thermodynamics.
(3) (3-0-6) (Prérequis: MIME 212 or equivalent)
Computational thermodynamics; materials design; process optimization; chemical reactions; phase diagrams; phase transformation; numerical simulation techniques.

MIME 576 Advanced Steelmaking and Processing.
(4) (3-1-8) (Prérequis: Permission of instructor)
(Restriction: Not open to students taking or have taken MIME 456) (This course is given with MIME 456) The role of thermodynamics and mass transport phenomena in the production of liquid iron and steel in blast furnaces and basic oxygen/electric arc furnaces, followed by refining, and continuous casting of steel sheet, blooms and billets. The physical metallurgy of steels. Thermo-mechanical processing, rolling, and strengthening mechanisms. Phases, microstructures, and associated mechanical properties.

MPMC-McGill/Poly Mining Coop
Offered by: Mining & Materials Engineering

MPMC 320 CAO et informatique pour les mines.
(3) (2-3-4) Présentation de techniques informatisées et de logiciels permettant d'appliquer l'informatique dans le cadre des diverses opérations reliées à l'exploitation des mines. Utilisation de logiciels de support: chiffrer électronique, traitement de texte, éditeur graphique, utilisateurs de DOS. Utilisation de graphisme, de traces à plumes, de tablettes numérisantes, d'interfaces pour capteurs analogique/numérique et numérique/analogique. Notions de géométrie descriptive appliquées à des problèmes miniers.

MPMC 321 Mécanique des roches et contrôle des terrains.

MPMC 326 Recherche opérationnelle I.

MPMC 328 Environnement et gestion des rejets miniers.
(3) (3-3-3) (Prérequis : MIME 200 et MIME 291) Effets du milieu de travail sur l'homme (hygiène du travail) : législation; contraintes thermiques, problèmes de bruit, de contaminants gazeux et de poussières; techniques de mesures. Effets de l'exploitation d'une mine sur le lieu (environnement et écologie) : législation; études d'impacts; effluents miniers: origine, nature et traitement des effluents; entreposage des résidus; restauration des sites.

MIME 329 Géologie minière.
(2) (2-2-2) (Prérequis : EPSC 221, MIME 200 et MIME 209.) Méthodes de cartographie minière, de sondages et d'échantillonnage. Notion de teneur de coupe, calcul des réserves par les méthodes conventionnelles. Évaluation des réserves par les méthodes géostatistiques.

MPMC 330 Géotechnique minière.
(3) (3-3-3) (Prérequis : MIME 323.) Propriétés mécaniques des matériaux meubles. Conception d'emplacements et de digues de rétention pour les matériaux miniers. Conception de structures enfouies. Problèmes particuliers avec les résidus miniers: lixiviation, dépôt, etc. Écoulément gravitaire des matériaux meubles.

MPMC 421 Exploitation en souterrain.

URBP-Urban Planning
Offered by: Urban Planning

URBP 201 Planning the 21st Century City.
(3) (3-1-5) The study of how urban planners respond to the challenges posed by contemporary cities world-wide. Urban problems related to the environment, shelter, transport, human health, livelihoods and governance are addressed; innovative plans to improve cities and city life are analyzed.

URBP 501 Principles and Practice 1.
(2) (2-0-4) This six-week intensive course exposes students to issues and techniques that are applicable in diverse professional planning contexts. The subject matter, geographic area, scale of intervention and institutional location of planning varies from semester to semester. The course focuses on a specific case study and is taught by a visiting lecturer with professional experience in the selected subject matter.

URBP 504 Planning for Active Transportation.
(3) (3-0-6) The importance of transit, walking, and cycling as modes of transportation in sustainable urban environments. Planning, design, and operation of mass transit systems, bikeways, and footpaths.

URBP 505 Geographic Information Systems.
(3) (0-2-7) An introduction to fundamental geographic information system (GIS) concepts and a range of GIS applications in urban and regional planning.

URBP 506 Environmental Policy and Planning.
(3) (3-0-6) (Restriction: This course is open to students in U3 and above) Analytical and institutional approaches for understanding and addressing urban and other environmental problems at various scales; characteristics of environmental problems and implications; political-institutional context and policy instruments; risk perception and implications; cost–benefit analysis, risk assessment, multiple-objectives approaches, life-cycle analysis; policy implementation issues; case studies.

URBP 507 Planning and Infrastructure.
(3) (8-5-5) (Restriction: Must be enrolled in the Barbados Field study Semester.) An exploration of the interrelationship between land-use planning and infrastructure provision, especially water and sewerage. An examination of their policy and regulatory frameworks and other methodology of plan making and evaluation.

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• Denotes courses taught only in alternate years.
‡ Professional Practice (Stage) in Dietetics involving special prerequisites.
† Indicates that departmental approval/permission must be obtained by a student prior to registration.
† Denotes courses not available as Education electives.
◎ Denotes courses with limited enrolment.
※ Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
▲ Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
❉ Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
URBP 519 Sustainable Development Plans.
(6) (0-10-8) (Restrictions: Must be enrolled in Barbados Field Study Semester. Not open to students who have taken or are taking AGRI 519 or CIVE 519.) Geared for solving real-world environmental problems related to water at the local, regional and international scale in Barbados. Projects to be designed by instructors in consultation with university, government and NGO partners and to be conducted by teams of 2 to 4 students in collaboration with them.

URBP 520 Globalization: Planning and Change.
(3) (3-3-3) (Restriction: Must be enrolled in the Barbados Field Study Semester.) Economic and social issues related to planning for sustainable development, with a focus on water. Political and environmental determinants of resource use. Impact of global, regional and local institutions, programs and plans in Barbados and in the field locale in general.

URBP 530 Urban Environmental Planning.
(3) (Note: Not open to students who have taken URBP 614.) Urban environmental planning with a focus on sustainability and smart growth. Consideration is given to the tools, techniques and processes that planners use to promote sustainable urban development. Local applications and community initiatives are addressed.

URBP 536 Transportation Seminar 1.
(1) (1-0-2) Current transportation issues and topics are addressed from practitioner and academic perspectives.

URBP 537 Transportation Seminar 2.
(1) (1-0-2) Current transportation issues and topics are addressed from the perspectives of both professional practitioners and academics.

URBP 538 Transportation Seminar 3.
(1) (1-0-2) Current transportation issues and topics are addressed from the perspectives of both professional practitioners and academics.
McGill School of Environment

ENVR Environment
Offered by: McGill School of Environment

ENVR 200 The Global Environment.
(3) (Fall) (Section 001: Downtown Campus) (Section 051: Macdonald Campus) A systems approach to study the different components of the environment involved in global climate change: the atmosphere, biosphere, hydrosphere, and lithosphere. The interactions among these components. Their role in global climate change. The human dimension to global change.

ENVR 201 Society, Environment and Sustainability.
(3) (Fall) (Section 001: Downtown Campus) (Section 051: Macdonald Campus) This course deals with how scientific-technological, socio-economic, political-institutional and behavioural factors mediate society-environment interactions. Issues discussed include population and resources; consumption, impacts and institutions; integrating environmental values in societal decision-making; and the challenges associated with, and strategies for, promoting sustainability. Case studies in various sectors and contexts are used.

ENVR 202 The Evolving Earth.
(3) (Winter) (Section 001: Downtown Campus) (Section 051: Macdonald Campus) Formation of the Earth and the evolution of life. How geological and biological change are the consequence of history, chance, and necessity acting over different scales of space and time. General principles governing the formation of modern landscapes and biotas. Effects of human activities on natural systems.

ENVR 203 Knowledge, Ethics and Environment.
(3) (Fall - Macdonald Campus; Winter - Downtown) (Section 001: Downtown Campus) (Section 051: Macdonald Campus) Introduction to cultural perspectives on the environment: the influence of culture and cognition on perceptions of the natural world; conflicts in orders of knowledge (models, taxonomies, paradigms, theories, cosmologies), ethics (moral values, frameworks, dilemmas), and law (formal and customary, rights and obligations) regarding political dimensions of critical environments, resource use, and technologies.

ENVR 301 Environmental Research Design.
(3) (Fall-Downtown Campus: Section 001) (Winter-Downtown Campus: Section 001; Macdonald Campus: Section 051) (Restrictions: Restricted to U2 or higher) Techniques used in design and completion of environmental research projects. Problem definition, data sources and use of appropriate strategies and methodologies. Principles underlying research design are emphasized, including critical thinking, recognizing causal relationships, ideologies and bias in research, and when and where to seek expertise.

ENVR 308 Topics in Environment 1.
(3) (Restriction: Normally open only to U3 MSE students) Intermediate-level seminars and discussion of interdisciplinary aspects of current problems in environment led by staff and/or special guests. This course is offered on an irregular basis.

ENVR 396 Undergraduate Research Project.
(3) (Restrictions: This course cannot be taken under the S/U option. Departmental permission required. Students cannot be supervised by the same instructor for two 396 Science courses.) (Note: Enrolment may be limited. Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects. Some projects may be accessible to students in other disciplines. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) Independent research project with a final written report.

ENVR 400 Environmental Thought.
(3) (Fall - Macdonald Campus: Winter - Downtown) (Section 001: Downtown Campus) (Section 051: Macdonald Campus) (Prerequisite: ENVR 203) (Restriction: Open only to U3 students, or permission of instructor) Students work in interdisciplinary seminar groups on challenging philosophical, ethical, scientific and practical issues. They will explore cutting-edge ideas and grapple with the reconciliation of environmental imperatives and social, political and economic pragmatics. Activities include meeting practitioners, attending guest lectures, following directed readings, and organizing, leading and participating in seminars.

ENVR 401 Environmental Research.
(3) (Fall) (Prerequisite: ENVR 301) (Restriction: B.A. Faculty Program in Environment, B.A.&Sc. Faculty Program in Environment, B.Sc.(Ag.Env.Sc.) and B.Sc. Major in Environment, and Diploma in Environment.) Students work in an interdisciplinary team on a real-world research project involving problem definition, methodology development, social, ethical and environmental impact assessment, execution of the study, and dissemination of results to the research community and to the people affected. Teams begin defining their projects during the preceding spring.

ENVR 451 Research in Panama.
(6) (Winter) (Restriction: students in the Panama Field Semester program. Offered in Panama only) Research projects will be developed by instructors in consultation with Panamanian universities, government agencies and non-governmental organizations. Project groups will consist of four to six students working with a Panamanian institution. Topics will be relevant to Panama: e.g., protection of the Canal watershed, economical alternatives to deforestation, etc.

ENVR 480 Topics in Environment 2.
(3) (Restriction: Normally open only to U3 MSE students) Intermediate-level seminars and discussion of interdisciplinary aspects of current problems in environment led by staff and/or special guests. This course is offered on an irregular basis.

ENVR 485 Readings in Environment 1.
(3) (Restriction: Normally open only to U3 MSE students) Interdisciplinary literature project/essays related to environment, enabling independent study under guidance of qualified MSE staff in areas outside the scope of individual departments. Proposed topic and method of evaluation must be approved by the Associate Director one month before the beginning of term. Contact the Program Advisor for information.

ENVR 490 Independent Study in Environment.
(3) (Prerequisite: Permission of instructor.) (Restrictions: Normally open only to U3 MSE students. Proposed topic and method of evaluation must be approved by the Director one month before the beginning of term. Contact the Program Advisor for information.) Interdisciplinary research projects related to environment, enabling independent study under guidance of qualified MSE staff in areas outside the scope of individual departments.

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ENVR 491 Independent Project in Environment.
(1) (Prerequisite: Permission of instructor.) (Restrictions: Normally open only to U3 MSE students. Proposed topic and method of evaluation must be approved by the Director one month before the beginning of term. Contact the Program Advisor for information.) Interdisciplinary research projects related to environment, enabling independent study under guidance of qualified MSE staff in areas outside the scope of individual departments.

ENVR 495D1 (3), ENVR 495D2 (3) Honours Research.
(Prerequisites: ENVR 301. Acceptance to Honours Program in Environment.) (Restrictions: For U3 B.A., B.Sc., and B.A.&Sc. Honours Program in Environment students. Not open to students in the B.Sc.(Ag.Env.Sc.) Honours in Environment program.) (Students must register for both ENVR 495D1 and ENVR 495D2.) (No credit will be given for this course unless both ENVR 495D1 and ENVR 495D2 are successfully completed in consecutive terms.) Preparation of an honours thesis.

ENVR 495N1 (3), ENVR 495N2 (3) Honours Research.
(Prerequisites: ENVR 301. Acceptance to Honours Program in Environment.) (Restrictions: For U3 B.A., B.Sc., and B.A.&Sc. Honours Program in Environment students. Not open to students in the B.Sc.(Ag.Env.Sc.) Honours in Environment program.) (Students must register for both ENVR 495N1 and ENVR 495N2.) (No credit will be given for this course unless both ENVR 495N1 and ENVR 495N2 are successfully completed in a twelve month period.) Preparation of an honours thesis.

(3) (Prerequisite: ENVR 301. Acceptance to Honours Program in Environment.) (Restrictions: For U3 B.Sc.(Ag.Env.Sc.) Honours Program in Environment students. Normally, credit for ENVR 496 will not be given unless ENVR 497 is completed; the courses may be evaluated together and the same mark will be given for both ENVR 496 and ENVR 497; ENVR 496 and ENVR 497 must be taken in consecutive semesters. Not open to students in the BA Honours, BSc Honours, or BA&Sc Honours programs in Environment.) Preparation of an honours thesis.

ENVR 497 Honours Research Part 2.
(3) (Prerequisite: ENVR 496. Acceptance to Honours Program in Environment.) (Restrictions: For U3 B.Sc.(Ag.Env.Sc.) Honours Program in Environment students. Normally, credit for ENVR 496 will not be given unless ENVR 497 is completed; the courses may be evaluated together and the same mark will be given for both ENVR 496 and ENVR 497; ENVR 496 and ENVR 497 must be taken in consecutive semesters. Not open to students in the BA Honours, BSc Honours, or BA&Sc Honours programs in Environment.) Continuation of the preparation of an honours thesis.

ENVR 519 Global Environmental Politics.
(3) (Prerequisite: ENVR 201 or ENVR 203 or permission of instructor) (Restrictions: Open to students in the Environment Graduate Option (available to other students with permission of instructor). (Not open to students who have taken ENVR 580 – section 001 – in Winter 2002, Fall 2003, or Fall 2004) (Note: This course has been offered three times as a Topics in Environment Course) How the problem of environmental degradation is dealt with at the international level. The scope and nature of global environmental protection issues that cross boundaries, both physical and conceptual. Actors, structures and processes of international society. Consideration of global commons and transnational resources and of environmental externalities.

ENVR 544 Environmental Measurement and Modelling.
(3) (Prerequisites: NRSC 430 or GEOG201 or URBP 505 or permission of instructor) (Restriction: Students registered in Environment Graduate Option (or permission of instructor)) Utility of geographic information systems, remote sensing and spatially-explicit modelling for environmental planning in conjunction with analytical frameworks used in the decision-making process (e.g., cost-benefit analysis, life-cycle analysis and multi-criteria decision making).

ENVR 580 Topics in Environment 3.
(3) (Prerequisite: Permission of instructor) Advanced-level seminars and discussion of interdisciplinary aspects of current problems in environment led by staff and/or special guests. This course is offered on an irregular basis.

ENVR 585 Readings in Environment 2.
(3) (Prerequisites: ENVR 400 and ENVR 401, or permission of instructor) Interdisciplinary literature project/essays related to environment, enabling advanced-level study under guidance of qualified MSE staff in areas outside the scope of individual departments. Proposed topic and method of evaluation must be approved by the Associate Director one month before the beginning of term. Contact the Program Advisor for information.
Desautels Faculty of Management

ACCT-Accounting

Offered by: Management

(3) (Prerequisite: MGCR 211) An examination of the theoretical foundation for financial reporting and revenue recognition. The tools of accounting, including a review of the accounting process and compound interest concepts. Asset recognition, measurement and disclosure. Partnership accounting.

(3) (Prerequisites: ACCT 351 and MGCR 341 or ACCT 311 and MGCR 341) A continuation of Intermediate Financial Accounting 1. An examination of liability recognition, measurement and disclosure, including leases, pension costs and corporate income tax. Shareholders' equity, dilutive securities and earnings per share. The statement of changes in financial position, basic financial statement analysis and full disclosure in financial reporting.

ACCT 354 Financial Statement Analysis.
(3) (Prerequisites: MGCR 211 and MGCR 341) Interpretative nature of the conceptual framework underlying a multitude of financial reporting standards, including the impact of alternative accounting methods, management biases and stakeholder interests in the analysis and valuation of the firm.

ACCT 356 International Accounting.
(3) (Prerequisites: ACCT 351 and ACCT 361) Current international issues in financial and management accounting including different reporting models and standards, the International Accounting Standards Committee, international transfer pricing and control systems in multinationals.

ACCT 361 Intermediate Management Accounting 1.
(3) (Prerequisite: MGCR 211) The role of management accounting information to support long term management decisions and to provide performance incentives.

ACCT 362 Intermediate Management Accounting 2.
(3) (Prerequisites: ACCT 361 or ACCT 313) An examination of a number of recurring issues in the area of decision-making and control, including cost allocation, alternative costing systems, and innovations in costing and performance measurement.

ACCT 385 Principles of Taxation.
(3) (Prerequisite: MGCR 211) An introduction to the concepts underlying the Canadian tax system and how they are applied in relation to the taxation of individuals and businesses.

ACCT 434 Topics in Accounting 1.
(3) (Restriction: Open to advanced students only) Topics will be selected from current issues in the Accounting Area.

ACCT 452 Financial Reporting Valuation.
(3) (Prerequisite: ACCT 354.) Models to determine firm value from accounting information and a broader perspective on key sources of information, key value drivers, in a setting where evaluating firm value is the ultimate purpose.

(3) (Prerequisites: ACCT 352 or ACCT 312) Reporting relevant financial information subsequent to long term intercorporate investments. The preparation of consolidated financial statements with emphasis on their economic substance rather than legal form.

ACCT 454 Financial Reporting.
(3) (Prerequisites: ACCT 352 or ACCT 312) An in-depth study of Canadian accounting standards and how Canadian corporations apply them in their financial reporting.

ACCT 455 Development of Accounting Thought.
(3) (Prerequisites: ACCT 352 or ACCT 312) The conceptual underpinning of accounting thought, including its historical development and the modifications that have occurred over time. A review of accounting literature and its relevance to practice.

ACCT 463 Advanced Management Accounting.
(3) (Prerequisites: ACCT 362 or ACCT 415) The theoretical frameworks for the examination and evaluation of management accounting and control systems. The technical aspects of accounting along with behavioural issues of management control.

ACCT 471 Non-Profit Accounting.
(3) (Prerequisites: ACCT 352 or ACCT 312) The foundations and practices of non-profit accounting for organizations including government, volunteer, charitable, health care and educational. The framework to evaluate and understand emerging issues.

ACCT 475 Principles of Auditing.
(3) (Prerequisites: ACCT 352 or ACCT 312) An introduction to basic auditing concepts and internal controls of an accounting system. Topics include current auditing standards, ethical conduct, legal liability, planning of an audit, sampling techniques, non-audit engagements, the study and evaluation of internal controls in an accounting system.

ACCT 476 Internal Auditing.
(3) (Prerequisites: ACCT 475) The modern internal audit approach including operational and management audit practices within the internal audit framework. Topics include objectives of an internal audit, communication by internal auditors, planning audit projects, audit of EDP systems, audit testing, operational areas.

ACCT 477 External Auditing.
(3) (Prerequisites: ACCT 475) The theory of auditing financial statements and the various complexities encountered in these audit environments. A thorough study of auditing standards, ethical conduct, communication by auditors, auditing in an EDP environment, audit of a small business, other reports and services provided by auditors and public accountants.

ACCT 486 Business Taxation 2.
(3) (Prerequisite: ACCT 385) A study of the Income Tax Act as it applies to the taxation of individuals and corporations, including capital cost allowances, capital gains, corporate reorganisations, trusts and partnerships and administrative regulations. A review of consumption taxes.

BUSA-Business Admin

Offered by: Management

BUSA 100 Introduction to Management.
(3) (Restriction: Restricted to U0 students.) To introduce freshman students to the field of management and integrate them into the Desautels Faculty of Management.

BUSA 250 Expressive Analysis for Management.
(3) (Restriction: Restricted to U0 Bcom students.) To develop skills with respect to analysis, writing and presentation.

BUSA 356 Management in Global Context.
(3) (Restriction(s): U2 and U3 students only) Contemporary issues in international management illustrating unique challenges faced in IB, including legal and political foundations of international management, cross-cultural awareness, global mindset, global leadership, building effective international workforce and operations.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses taught only in alternate years.
Professional Practice (Stage) in Dietetics involving special prerequisites.
Indicates that departmental approval/permission must be obtained by a student prior to registration.
Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.

2011-2012 Undergraduate Programs, McGill University C-157
BUSA 364 Business Law 1.
(3) (Restriction: This course cannot be double-counted from the Certificate in Management.) An introduction to the legal system and basic legal principles affecting business. Tort negligence, contracts, forms of business organization, creditors’ rights and bankruptcy.

BUSA 368 Business Law 2.
(3) (Prerequisite: BUSA 364) An outline of the application of law to professional negligence, product liability, competition, corporate governance and employment. Review of particular contracts; sale, agency, mortgages, lease, insurance.

BUSA 391 International Business Law.
(3) (Prerequisite: MGCR 382) Introduction to the legal aspects of foreign trade and investment transactions. Forms and documentation of types of foreign trade contracts. Conflict avoidance, arbitration, and litigation arising from international transactions. Government regulation of foreign trade. Legal aspects of the international transfer of investments and technology. Conventions and institutions of international economic cooperation (e.g. GATT, ICC, IMF, etc.).

BUSA 394 Managing in Asia.
(3) (Prerequisite: MGCR 382.) (Corequisite: BUSA 356) (Restriction: Restricted to U2/U3 students.) Environmental aspects, Eastern value systems and distinct patterns of management in the Asia-Pacific region. Patterns of Chinese, Japanese, Korean, Taiwanese and other management philosophies, practices and styles. Interaction between these theories and practices and those of the West and Canada will be contrasted.

BUSA 395 Managing in Europe.
(3) (Prerequisite: MGCR 382) (Corequisite: BUSA 356) Current social, economic and trade developments in the rapidly-evolving European arena. Focus on both the expanding EU and integrating with emerging market economies and Central and Eastern Europe. Emphasis on managing in the expanded opportunities and challenges facing international and Canadian managers.

BUSA 399 Internship Project.
(1) Upon completion of the internship, students must submit a paper on the integration of the applied and academic aspects of their BCom courses and the Internship experience.

BUSA 400 Independent Studies in Management.
(3) (Prerequisite: U3 students only. CGPA of at least 3.00 required.) Research reading or field projects, permitting independent study under the guidance of a Faculty member. Projects to be arranged individually with instructors. A detailed student proposal must be submitted to the instructor and the Director during the first week of term.

BUSA 401 Independent Studies in International Business.
(3) (Note 1: Projects to be arranged individually with instructors. A detailed student proposal must be submitted to the instructor and the BCom Office during the first week of term.) (Restriction(s): U3 students only. CGPA of at least 3.00 required.) Independent study in international business.

BUSA 433 Topics in International Business 1.
(3) (Prerequisite: MGCR 382) (Restriction(s): U2 and U3 students only.) Current topics in the area of international business. Topics will be selected from important current issues in international business.

BUSA 434 Topics in General Management.
(3) (Note: Topics vary from year to year) Topics for Fall 2011 and Winter 2012: Writing Seminar (Fall/Winter) and the Pharma/Biotech Industry from Drug Discovery to IPO (Winter). Topics in management.

BUSA 462 Management of New Enterprises.
(3) (Prerequisite: MGCR 341) Evaluation of new business ventures, recognition and treatment of associated risks. Detailed consideration is given to sources of risk funds in the form of venture capital, public, private and government programs. Emphasis on the critical importance of the entrepreneur, the demands and the risks faced as well as the rewards and satisfactions.

BUSA 464 Management of Small Enterprises.
(3) (Prerequisite: MGCR 341) The distinctive characteristics, risks, opportunities and rewards inherent in the ownership and management of a small enterprise. It will assist students in judging the appropriateness of an entrepreneurial career and in selecting and timing a specific venture.

BUSA 465 Technological Entrepreneurship.
(3) (Prerequisite: MIME 310 or MGCR 341) Concentrating on entrepreneurship and enterprise development, particular attention is given to the start-up, purchasing and management of small to medium-sized industrial firms in an environment that would appeal to Engineering students. The focal point is in understanding the dilemmas faced by entrepreneurs, resolving them, developing a business plan and the maximum utilization of the financial, marketing and human resources that make for a successful operation.

BUSA 466 Technological Entrepreneurship Project.
(3) (Restriction: students registered in Minor in Technological entrepreneurship program) (Prerequisite: 12 credits in the MTE program and BUSA 465) Project involving a small to medium company in the high technology field.

BUSA 481 Managing in North America.
(3) (Prerequisite: MGCR 382) (Corequisite: BUSA 356) (Restriction: U2 and U3 students) Analysis of corporate strategies in the context of Canada-United States-Mexico Free Trade Agreement. Emphasis on public policy’s impact on corporate decision-making and implications for management. Examines bilateral experience of major industrial sectors compared with global corporate strategies. Theoretical and empirical literature combined with international histories, policy and management case studies.

BUSA 493 Global Economic Competitiveness.
(3) (Prerequisite: MGCR 382.) How nations achieve and maintain competitiveness in the rapidly globalizing world economy. Studies the stages of evolution of world competitiveness in 46 nations, incorporating the latest practical business theories and case studies on the dynamics of effective globalization ventures.

BUSA 497 Internship in International Business.
(3) (The internship will consist of a minimum of 150 hours of work over a period of 8 to 12 weeks at an approved host institution. The institution should be located either overseas or have an international focus. Major in International Management students who are enrolled in Minor Concentrations in the Faculty of Arts may complete Internship courses in the Faculty of Arts. Please consult the Faculty of Arts Internship Program section in the Undergraduate Programs Calendar or refer to the Arts Internships Website: www.mcgill.ca/arts-internships for requirements, including hours and weeks required and CGPA cut-offs.) (Restriction(s): U2 and U3 Major in International Management students only) Internship with an approved host institution.

BUSA 498 International Internship.
(6) (Restriction: U2 and U3 B.Com.; Major in International Management students only) (The internship will consist of a minimum of 300 hours of work over a period of 10-12 weeks at an approved host institution. The institution should be located either overseas or have an international focus. Major in International Management students who are enrolled in Minor Concentrations in the Faculty of Arts may complete Internship courses in the Faculty of Arts. Please consult the Faculty of Arts Internship Program section in the Undergraduate Programs Calendar or refer to the Arts Internships Website: www.mcgill.ca/arts-internships for requirements, including hours and weeks required and CGPA cut-offs.) Internship with an approved host institution.

BUSA 499 Case Analysis and Presentation.
(3) (Prerequisite: BCom Core and 3.0 CGPA or better.) Integration of core knowledge and practice for preparing and presenting case studies, including professor coaching, preparation and presentation feedback, presentation skills, leadership skills, team building skills, analytical skills, logical thinking, debating, persuasive communications and cross discipline work.
FINE-Finance
Offered by: Management

FINE 342 Finance 2.
(3) (Prerequisite: MGCR 341) (Restriction: For Finance Concentration/Major/Honours) (Restriction: Only one of FINE 342 or FINE 343 can be counted for credit) In-depth study of corporate finance, risk, diversification, portfolio analysis, and capital market theory.

FINE 343 Managerial Finance.
(3) (Restriction: For non-Finance students) (Prerequisite: MGCR 341) (Restriction: Only one of FINE 342 or FINE 343 can be counted for credit) (Continuing education: requirement for CGA, CMA; the Institute of Internal Auditors; the Canadian Institute of Management (in addition to these, the course "Introduction to Business," CGMG 282 is also required for C.I.M.).) A second course in Finance for students not pursuing the Finance Concentration. Topics include short and long term asset and liability management, risk and diversification, and the nature of capital markets. Cases, lectures, projects and discussions.

FINE 434 Topics in Finance 1.
(3) (Prerequisite: MGCR 341) Topic for Fall 2011: Applied Investment Banking. Topics will be selected from current issues in the Finance Area.

FINE 440 Honours Investment Management Research Project 1.
(3) (Restriction: Restricted to U2 students in B.Com.; Honours in Investment Management program.) Research work on company, industry, risk management, strategy and macro research reports, contemporary issues in finance presented by market practitioners.

FINE 441 Investment Management.
(3) (Prerequisite: MGCR 341) Application of investment principles and security analysis to the selection and comparison of equity and fixed income securities in the current economic and financial environment. Also covered are: determinants of stock prices, growth models and portfolio diversification.

FINE 442 Capital Markets and Institutions.
(3) (Prerequisite: MGCR 341) (Restriction: Only one of FINE 442 or ECON 302 can be counted for credit.) Functions of the capital market through flow of funds analysis and an examination of portfolio activities of financial intermediaries. Also covered are: securities regulations and ethical considerations, the term structure of interest rates and risk and rates of return in debt and equity markets.

FINE 443 Applied Corporate Finance.
(3) (Prerequisite: FINE 342) Concepts and techniques are applied to problems faced by managers in Corporate Finance, such as working capital management, capital budgeting, capital structure, dividend policy, cost of capital, and mergers and acquisition. Application of theory and techniques through case studies.

FINE 444 Risk Management and Insurance.
(3) (Prerequisite: MGCR 341) Risk exposures of the individual and the firm. A wide variety of techniques for reducing risk exposure are studied including Life, Property and Casualty Insurance. In addition, the course treats the problems faced by insurers such as re-insurance and investment policy.

FINE 445 Real Estate Finance.
(3) (Prerequisite: MGCR 341) Fundamentals of mortgages from the viewpoint of both consumer and the firm. Emphasis on legal, mathematical and financial structure, provides a micro basis for analysis of the functions and performance of the mortgage market, in conjunction with the housing market. A weekly series of one-hour tutorials are mandatory for the first six weeks of class.

FINE 448 Financial Derivatives.
(3) (Prerequisite: MGSC 272 or equivalent) The course will concentrate on both the analytical and practical aspects of investments in options and futures. The first part of the course concentrates on option and futures valuation, considering both discrete and continuous time models. The second part of the course concentrates on the practical aspects of options and futures trading.

FINE 449 Market Risk Models.
(3) (Prerequisites: FINE 441 and MGSC 272 or equivalent.) Dynamic market risk models including GARCH volatility models, dynamic conditional correlation models, non-normal return distributions, option pricing allowing for skewness and kurtosis, and option risk management using delta, delta-gamma and full-valuation.

FINE 450 Honours Investment Management Research Project 2.
(3) (Prerequisite: FINE 440) (Restriction: Restricted to U3 students in B.Com.; Honours in Investment Management program.) Continuation of research work on company, industry, risk management, strategy and macro research reports, contemporary issues in finance presented by market practitioners.

FINE 451 Fixed Income Analysis.
(3) (Prerequisite: FINE 441) Fixed income financial instruments and their uses for both financial engineering and risk management (at the trading desk and aggregate firm level). This will involve coverage of fixed income mathematics, risk management concepts, term structure modeling, derivatives valuation and credit risk analysis.

FINE 455 Alternative Investments.
(3) (Prerequisite(s): FINE 441) (Corequisite(s): FINE 448 and FINE 451) (This course is restricted to students in the Honours Investment Management program.) Alternative asset classes and analysis of the expected risk and return on alternative investment strategies including long-short equity, convertible arbitrage, managed futures, and quantitative trading strategies. Alternative investment strategies include commodities, derivatives, hedged strategies, real estate, private equity and venture capital.

FINE 480 Global Investments.
(3) (Prerequisite: FINE 441, FINE 482) Major principles of international investments and global asset allocation, focusing on recent developments in modeling and predicting global asset returns. Main approaches to stock selection, style investing, and special issues such as indirect diversification and country and industry effects in equity pricing. Use of Datasream and other financial data sources.

FINE 482 International Finance 1.
(3) (Prerequisite: MGCR 341) The international financial environment as it affects the multinational manager. Balance of payments concepts, adjustment process of the external imbalances and the international monetary system. In depth study of the institutional and theoretical aspects of foreign exchange markets; international capital markets, including Eurobonds and eurocredit markets.

FINE 492 International Finance 2.
(3) (Prerequisite: FINE 482) Focus on the operational problems of financial management in the multinational enterprise: Financing of international trade, international capital budgeting, multinational cost of capital, working capital management; International banking and recent developments in international capital markets.

| Denotes check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered. |
| Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12. |
| Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration. |
| Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students. |
FINE 541 Applied Investments.
(3) (Prerequisite (Undergraduate): FINE 441. Limited enrolment. Prerequisite (Graduate): Permission of the instructor.) (Restriction: Open to U2, U3 students only) Students are exposed to practical aspects of managing investment portfolios. A principal activity of students is participation in the management of a substantial investment fund.

FINE 541D1 (1.5), FINE 541D2 (1.5) Applied Investments.
(Prerequisite: MGCR 341) (Students must register for both FINE 541D1 and FINE 541D2.) (No credit will be given for this course unless both FINE 541D1 and FINE 541D2 are successfully completed in consecutive terms) FINE 541D1 and FINE 541D2 together are equivalent to FINE 541) Students are exposed to practical aspects of managing investment portfolios. A principal activity of students is participation in the management of a substantial investment fund.

FINE 541N1 (1.5), FINE 541N2 (1.5)
(Prerequisite (Undergraduate): FINE 441. Limited enrolment) (Prerequisite (Graduate): Permission of the instructor.) (Students must also register for FINE 541N2) (No credit will be given for this course unless both FINE 541N1 and FINE 541N2 are successfully completed in a twelve month period) (Restriction: Open to U2 students only in the Winter term and open to U3 students only in the Fall term.)

FINE 547 Advanced Finance Seminar.
(3) (Undergraduate Prerequisites: FINE 441 and FINE 443.) (Graduate Prerequisite: MGCR 651.) (Corequisites: FINE 646 and FINE 622.) (Restriction: Not open to students who have taken FINE 647.) (Note: Lectures for this course span both the Fall and Winter semesters.) Selected topics will be discussed by Faculty members, invited guest speakers, and the students. Each student is required to select a topic for study and prepare a written report for presentation.

INDR-Industrial Relations
Offered by: Management, Arts - Dean's Office

INDR 294 Introduction to Labour-Management Relations.
(3) An introduction to labour-management relations, the structure, function and government of labour unions, labour legislation, the collective bargaining process, and the public interest in industrial relations.

INDR 434 Topics in Labour Management Relations 1.
(3) (Prerequisite: INDR 294) Topics will be selected from current issues in the labour management relations area.

INDR 449 Occupational Health and Safety.
(3) (Prerequisite: INDR 294) Examines the public policy of occupational health and safety in Canada as well as the dynamics of contemporary occupational health and safety management. Topics include occupational safety and health, human rights and workers’ compensation legislation, accident prevention and investigation, ergonomics, safety training, and workers’ compensation claims management.

INDR 459 International Employment Relations.
(3) (Prerequisite: INDR 294) Examines employment relations systems of other nations including those of the European Union and the Pacific rim, including the existing industrial relations institutional structure, the historical and recent developments in these systems, the role of multi-national corporations, as well as the current economic and political context.

INDR 492 Globalization and Labour Policy.
(3) (Prerequisite: INDR 294) Examination of labour policy in the context of globalization. The North American Wagner Act model is critically reviewed in light of the global economy. New models of industrial relations regulation are studied that relate to accounting information. Relationship between accounting applications and transaction processing systems. Practical experience with packaging accounting systems.

INSY-Information Systems
Offered by: Management

INSY 331 Managing Information Technology.
(3) (Prerequisite: MGCR 331) Tools and concepts necessary to manage information systems in an organization: hardware/software/telecom administration, knowledge discovery/management, web-technologies, and computer security. Focuses on both mechanical aspects of IT and conceptual understanding with regard to impact on business organizations.

INSY 332 Accounting Information Systems.
(3) (Prerequisites: MGCR 331 and MGCR 211) Accounting cycles and information flows and the systems that manage those flows. Principals of systems development and data management as relates to accounting information. Relationship between accounting applications and transaction processing systems. Practical experience with packaging accounting systems.

INSY 333 Systems Analysis and Modeling.
(3) (Prerequisite: MGCR 331) First two phases of the software development life cycle. Techniques used to conduct system requirement analysis, practical application of the analyst role in identifying and resolving system requirement analysis, practical application of the software development life cycle. Techniques used to conduct system requirement analysis, practical application of the software development life cycle. Techniques used to conduct system requirement analysis, practical application of the software development life cycle.

INSY 339 IT Consulting.
(3) (Prerequisite: MGCR 331) Examination of the full "life-cycle" from initial contact to project termination. How an IT consultant manages their practice.

INSY 341 Developing Business Applications.
(3) (Prerequisite: MGCR 331) Fundamental programming techniques, concepts, and data structures. Discusses modularization and maintainability. Emphasis on facilitating communication and understanding between systems analysts and programmers to support decision-making.

INSY 342 Enterprise Applications.
(3) (Prerequisite: MGCR 331) Differences between functional information systems and enterprise applications; different types of enterprise applications; and how enterprise applications are used to provide strategic and operational benefits in various organizations. Students will also gain hands-on experience on enterprise applications.

INSY 422 Object Oriented Design.
(3) (Prerequisite: INSY 342) (Restriction: Not open to students having taken COMP 202, COMP 203) Principles of the object oriented paradigm. Object technology, data management, and design principals related to business application development.
INSY 430 IT in Financial Markets.
(3) (Prerequisite: MGCR 331) How IT has impacted various parts of the financial services sector including stock markets, brokerage houses, retail banking and insurance.

INSY 431 IT Implementation Management.
(3) (Prerequisite: MGCR 331) (Prerequisite-Continuing Education: CCCS 300, INSY 333, INSY 437) Exposure to a variety of real-life strategic and operational issues that arise when implementing IT. It may involve the selection process of an information technology, its introduction, implementation, management and/or improvement.

INSY 432 IT in Business.
(3) (Prerequisite: MGCR 331) Discusses the role of the information systems department within an organization, information systems resource management, staff organization and leadership, strategic systems, planning, and end-user computing. Focuses on key IT trends in industries such as banking, insurance, manufacturing, retailing & distribution, and health.

INSY 434 Topics in Information Systems 1.
(3) (Prerequisite: MGCR 331) Topic for Winter 2012: Business Intelligence. Current topics in the area of information systems.

INSY 436 Telecommunications Management.
(3) (Prerequisites: MGCR 331 and INSY 333) This course addresses the challenges and issues managers face in delivering telecommunications and data networking services to their organizations. Using case studies and lectures, it explores technical and managerial aspects of data communications; local, wide-area and wireless networks; network protocols; Internet/intranets; client/server computing; network security and management.

INSY 437 Managing Data & Databases.
(3) (Prerequisite: MGCR 331) (Management: students are encouraged to take this course as early as possible in their program.) Management of organizational data, implementation of database management systems, and the roles and responsibilities of data management personnel. Explores different models of data representation with an emphasis on the relational model; simple and complex SQL queries.

INSY 438 Designing and Developing IT.
(3) (Prerequisites: MGCR 331, INSY 333) (Prerequisite-Continuing Education: CCCS 300) Essential techniques and tools used in logical/physical design and development of information systems. Both technical and behavioral (human-computer interaction) issues related to designing and developing systems.

INSY 440 E-Business.
(3) (Prerequisite: MGCR 331) Build the knowledge base and skills needed to face today's electronic business challenges, opportunities, and issues. Explore important concepts, models, tools and applications related to e-business.

INSY 444 Managing Knowledge with Information Technology.
(3) (Prerequisite: MGCR 331) Types of organizational knowledge and their value for organizations, analyzing knowledge processes, and assessing tools and technologies for managing knowledge.

INSY 450 Information Systems Project Management.
(3) (Prerequisite: MGCR 331) Practical principles of project management essential to successful IS development projects or other complex undertakings within an organization; includes methods for defining, planning, and scheduling activities and resources. Discusses managerial and behavioural issues.

INSY 454 Technological Foundation for E-Commerce.
(3) (Prerequisite: MGCR 331) (Restriction: A basic understanding of HTML is necessary.) Technology trends and vocabulary pertaining to current technology developments in E-Commerce. Practical IT skills in web application design, including ASP, XML, etc. Discusses business issues affected by the introduction of e-technologies.

INSY 533 Information Systems Auditing and Security.
(3) (Prerequisite: INSY 332 or CCCS 300) (Requirement for the Institute of Internal Auditors) This course considers problems and methods of establishing effective controls of computer systems at an advanced level. The student will learn how to review, and evaluate controls in a computer environment through the use of case studies. The student will also learn how to use computer assisted audit techniques to test computer controls.

MGCR-Management Core

Offered by: Management

MGCR 211 Introduction to Financial Accounting.
(3) The role of financial accounting in the reporting of the financial performance of a business. The principles, components and uses of financial accounting and reporting from a user's perspective, including the recording of accounting transactions and events, the examination of the elements of financial statements, the preparation of financial statements and the analysis of financial results.

MGCR 222 Introduction to Organizational Behaviour.
(3) Individual motivation and communication style; group dynamics as related to problem solving and decision making, leadership style, work structuring and the larger environment, interdependence of individual, group and organization task and structure.

MGCR 271 Business Statistics.
(3) (Prerequisite: MATH 122 and 123 or equivalent) (Restriction: Not open to students who have taken or are taking MATH 204, MATH 324, PSYC 204, ECON 227, ECON 257) (You may not be able to receive credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) Statistical concepts and methodology, their application to managerial decision-making, real-life data, problem-solving and spreadsheet modeling. Topics include: descriptive statistics; normal distributions, sampling distributions and estimation, hypothesis testing for one and two populations, goodness of fit, analysis of variance, simple and multiple regression.

MGCR 293 Managerial Economics.
(3) The course focuses on the application of economic theory to management problems and the economic foundations of marketing, finance, and production. Attention is given to the following topics: price and cost analysis; demand and supply analysis, conditions of competition.

MGCR 331 Information Systems.
(3) (Restriction: Fall sections restricted to BCom students.) (A special seminar will be available to those students who do not possess the above basic computer skills, at the students' own expense.) Introduction to principles and concepts of information systems in organizations. Topics include information technology, transaction processing systems, decision support systems, database and systems development. Students are required to have background preparation on basic micro computer skills including spreadsheet and word-processing.
MGCR 341 Finance 1.
(3) (Prerequisite: MGCR 271 or equivalent) An introduction to the principles, issues, and institutions of Finance. Topics include valuation, risk, capital investment, financial structure, cost of capital, working capital management, financial markets, and securities.

MGCR 352 Marketing Management 1.
(3) Introduction to marketing principles, focusing on problem solving and decision making. Topics include: the marketing concept; marketing strategies; buyer behaviour; Canadian demographics; internal and external constraints; product; promotion; distribution; price. Lectures, text material and case studies.

MGCR 360 Social Context of Business.
(3) This course examines how business interacts with the larger society. It explores the development of modern capitalist society, and the dilemmas that organizations face in acting in a socially responsible manner. Students will examine these issues with reference to sustainable development, business ethics, globalization and developing countries, and political activity.

MGCR 382 International Business.
(3) An introduction to the world of international business. Economic foundations of international trade and investment. The international trade, finance, and regulatory frameworks. Relations between international companies and nation-states, including costs and benefits of foreign investment and alternative controls and responses. Effects of local environmental characteristics on the operations of multi-national enterprises.

MGCR 423 Organizational Policy.
(3) (Restriction: Open to U2, U3 students only) Focus on the primary functions of general management: the formation of a corporate strategy that relates the company's opportunities to its resources, competence, and leadership style. Measures to improve organization effectiveness.

MGCR 472 Operations Management.
(3) (Prerequisite: MGCR 271 or equivalent) (Requirement for the Canadian Institute of Management) Design, planning, establishment, control, and improvement of the activities/processes that create a firm's final products and/or services. The interaction of operations with other business areas will also be discussed. Topics include forecasting, product and process design, waiting lines, capacity planning, inventory management and total quality management.

MGPO-Management Policy
Offered by: Management

MGPO 365 Business-Government Relations.
(3) (Restriction: U2 & U3 students only) The political environment in which business organizations operate; how governments control, regulate, promote, and compete with the private sector and how corporate policy responds to, and seeks to influence, these activities.

MGPO 383 International Business Policy.
(3) (Prerequisites: MGCR 382) (Restriction: Open to U2, U3 students only) Development and application of conceptual approaches to general management policy and strategy formulation in multinational business environment (exporting, licensing, contractual arrangements, turnkey projects, joint ventures, consortia); technology transfer, location and ownership strategies; competitive multinational relationships. Emphasis on pragmatic analysis, using case studies.

MGPO 434 Topics in Policy 1.
(3) (Restriction: Open to U2, U3 students only) Not-for-Profit Consulting. This is a specialized course covering an advanced topic in strategy and organization.

MGPO 440 Strategies for Sustainability.
(3) (Restriction: Open to U2, U3 students only) This course explores the relationship between economic activity, management, and the natural environment. Using readings, discussions and cases, the course will explore the challenges that the goal of sustainable development poses for our existing notions of economic goals, production and consumption practices and the management of organizations.

MGPO 445 Industry Analysis & Competitive Strategy.
(3) (Restriction: Open to U3 students only) Analysis of industry structure, macro-environment, and evolution. Evaluation of strategic position, behaviour, and intent of organizations within industry context. Development of strategic recommendations for these firms.

MGPO 450 Ethics in Management.
(3) (Restriction: U2 and U3 students only) An examination of the economic, legal and ethical responsibilities of managers in both private and public organizations. Through readings, case studies, discussions and projects the class evaluates alternative ethical systems and norms of behaviour and draws conclusions as to the right, proper and just decisions and actions in the face of moral dilemmas. The focus of this course is on the decision process, values and consistency of values of the individual and on the impact of systems control and incentives on managerial morality.

MGPO 460 Managing Innovation.
(3) (Restriction: Open to U2, U3 students only) Firms face difficulties in developing new products. This course examines the new product development process to understand why problems occur and what managers can do. Topics include the creative synthesis of market and technology; the coordination of functions; and the strategic connection between the project and the strategy.

MGPO 468 Managing Organizational Politics.
(3) (Restriction: Open to U2, U3 students only) Power and politics can be mechanisms of control that maintain the status quo or they can be used as a force for change. Students learn how to recognize politics and use power. There is also a strong focus on the ethical implications.

MGPO 469 Managing Globalization.
(3) (Recommended: MGCR 423) (Restriction: Open to U2, U3 students only) This course exposes students to global competition. Many critical questions will be explored, such as: why do industries globalize? how do firms expand and grow internationally? what are strategies that firms can use to compete internationally? Many industries will be covered, such as: telecommunications, airlines, footwear, and automobiles.

MGPO 470 Strategy and Organization.
(3) (Restriction: Open to U2, U3 students only) This course explores how strategic change affects the organization and how the organization can be designed to realize its strategy more effectively. It will examine how strategic choices affect organizational structures, processes, culture, human resource policies, leadership styles, etc. and how the organization can be aligned with the organizational mission.

MGPO 475 Strategies for Developing Countries.
(3) (Restriction: Open to U2, U3 students only) Strategic management challenges in developing and emerging economies. Focus on strategies that foster both firm competitiveness and economic development, including: technological capabilities, new forms of organization, small and large firms, global production, social impact, global standards and governance.

MGPO 567 Business in Society.
(3) (Restriction: U2 and U3 students only) Examines different ideologies; business ethics and values; the corporation and its constituencies; the social impact of corporate decisions. The focus of this course is on the interaction between business organizations and society and on incorporating social impact analysis into strategic management.

MGSC-Management Science
Offered by: Management

MGSC 372 Advanced Business Statistics.
(3) (Prerequisite: MGCR 271) (Restriction: Not open to students who have taken MGSC 272 or MGCR 272) A practical managerial approach to advanced simple and multiple regression analysis, with application in finance, economics and business, including a review of probability theory, an introduction to methods of least squares and maximum likelihood estimation, autoregressive forecasting models and analysis of variance.
MGSC 373 Operations Research 1.
(3) (Prerequisite: MGCR 271) (Prerequisite (CE): MGCR 273) (Restriction: Not open to students who have taken MGCR 373) (Note: Continuing Education: CMA Requirement) A realistic experience of analytical models which have been successfully applied in several areas of managerial decision-making like marketing, finance and IS. Emphasis on the formulation of problems, their solution approaches, limitations, underlying assumptions and practical use. Topics include: decision analysis, project management, simulation, linear and integer programming, sensitivity analysis.

MGSC 402 Operations Strategy.
(3) (Restriction: Not open to U0 and U1 students) Effective management at the operating unit level, including the concept of "operations strategy", action-oriented tools and frameworks for designing and managing operations innovation, effective use of operations-related technologies and supply chain strategy.

MGSC 403 Introduction to Logistics Management.
(3) (Prerequisite: MGCR 472.) Managing logistics systems, including transportation management, facility location, procurement, distribution management, and supply chain management.

MGSC 405 Quality Management.
(3) (Restriction: Not open to U0 and U1 students and other faculties.) Integrated view of quality management, quality systems and improvement techniques including tools and methodologies for quality improvement, six-sigma methodology.

MGSC 415 Supplier Management.
(3) (Restriction: Not open to U0 and U1 students) Strategic role of purchasing, supplier selection, supplier relationship management, international sourcing, E-procurement, price determination, purchasing services, and auctions.

MGSC 431 Operations Analysis.
(3) (Prerequisite: MGCR 472.) Optimizing cycle-time, throughput and inventory performance of operations, including analytical modeling as well as simulation.

MGSC 434 Topics in Management Science 1.
(3) Topics will be selected from current issues in the Management Science Area.

MGSC 479 Applied Optimization.
(3) (Prerequisite: MGSC 373.) Applications of optimization models to management problems, including Linear Programming, Integer Programming and Nonlinear Programming.

MGSC 575 Applied Time Series Analysis Managerial Forecasting.
(3) (Prerequisite (Undergraduate): MGCR 271.) (Restriction: Not open to students who have taken MGSC 675.) Management applications of time series analysis. Starting with ratio-to-moving average methods, the course deals successively with Census 2, exponential smoothing methods, the methodology introduced by Box and Jenkins, spectral analysis and time-series regression techniques. Computational aspects and applications of the methodology are emphasized.

MGSC 576 Simulation of Management Systems.
(3) (Prerequisite: (Undergraduate) MGCR 271.) (Restriction: Not open to students who have taken MGSC 678.) Building simulation models of management systems. Design of simulation experiments and the analysis and implementation of results. Students are expected to design a complete simulation of a real problem using a standard simulation language.

MRKT-Marketing
Offered by: Management

MRKT 351 Marketing and Society.
(3) (Prerequisite: MGCR 352) The social issues and concerns affecting marketing management are examined and the two way relationship between marketing and social change is explored. Particular attention is paid to consumerism, government regulation in marketing, corporate social responsibility, social marketing and marketing role in a conserve society.

MRKT 354 Marketing Management 2.
(3) (Prerequisite: MGCR 352) The decision areas in marketing. Emphasis on the use of marketing theory and concepts in the solution of realistic marketing problems. Decision making in a marketing context using cases, some of which will be computer assisted, and readings.

MRKT 355 Services Marketing.
(3) (Prerequisite: MGCR 352) Services are fleeting and involve direct contact between the supplier and the buyer. Inventories disappear every time an aircraft takes off or the night passes for an hotel. Yet services have become the largest sector in modern Western economy and their importance shows every sign of continuing to grow. This course focuses on the key differences between product and services marketing and the skills that are necessary for the services sector.

MRKT 357 Marketing Planning 1.
(3) (Prerequisite: MRKT 354, MRKT 451, and MRKT 452 (Restriction: Management: U3 students only) Marketing Planning is designed as a capstone to previous marketing courses; Structured approach to developing a marketing plan, proceeding from corporate mission and objectives through to detailed marketing mix programs. Lectures, discussions and cases. A field project provides marketing planning experience.

MRKT 360 Marketing of Technology.
(3) (Restriction: non-Management students) The analysis, planning, and control of marketing activities in a high technology business environment through the application of a good conceptual framework that is useful in addressing marketing management problems.

MRKT 365 New Products.
(3) (Prerequisite: MGCR 352) New products will follow the new product introduction process from idea generation to post introduction. It will use ideas developed in marketing, production and policy. It will use cases and projects and will involve a real life new product project. In the average firm today, 40% of sales come from products not being sold five years ago. The ability of the firm to innovate is at the heart of long term success.

MRKT 434 Topics in Marketing 1.
(3) (Prerequisite: MGCR 352) (Corequisite (Continuing Education): MGCR 273) Topic: Marketing of Exports. Current topics in marketing.

MRKT 438 Brand Management.
(3) (Prerequisite: MGCR 352) Looks at the decisions a brand manager in a major consumer goods company takes. It examines, in particular, the breakdown of advertising and sales promotion expenditures. It looks at the short term nature of the decisions taken. It will concentrate on the vast amount of new information available to brand managers today, especially in the form of scanner data.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.
MRKT 451 Marketing Research.
(3) (Prerequisites: MGCR 352 and MGCR 271) Theoretical techniques and procedures common in marketing research. Topics include: research design, sampling, questionnaire design, coding, tabulating, data analysis (including statistical techniques). Specialized topics may encompass advertising, motivation and product research; forecasting and location theory.

MRKT 452 Consumer Behaviour.
(3) (Prerequisite: MGCR 352) A study of basic factors influencing consumer behaviour. Attention is focused on psychological, sociological and economic variables including motivation, learning, attitude, personality, small groups, social class, demographic factors and culture, to analyze their effects on purchasing behaviour.

MRKT 453 Advertising Management.
(3) (Prerequisite: MRKT 452) (Note: Cont Ed section-check Calendar.) Surveys advertising and promotion in Canadian context. Examines activities as they relate to advertisers, the advertising agency and media. Stresses advertising by objectives as the approach to developing strategy and tactics. Real examples from current campaigns are the focal point of class discussions.

MRKT 455 Sales Management.
(3) (Prerequisite: MGCR 352) Responsibilities of the sales manager as they relate to the sales force. These include the selection of process, training alternatives, compensation and incentive plans, supervision and evaluation and budgeting and forecasting. Case studies and discussions of sales force models are used.

MRKT 456 Business to Business Marketing.
(3) (Prerequisite: MGCR 352) Decision-making and management of the marketing effort in a business to business (b-to-b) context, including the b-to-b marketing system; b-to-b purchasing; researching the b-to-b market; product, price distribution, selling and advertising decisions; strategies for business markets.

MRKT 459 Retail Management.
(3) (Prerequisite: MGCR 352) Principles and methods of marketing management as applied to retailing, including strategy and tactics: market structure; consumer behaviour; competition; financial management; human resources planning; promotion; presentation; merchandising; operations; pricing; planning and attaining retail profits. Lectures, text material, outside reading, planned retail visiting, cases.

MRKT 461 Advertising Practicum.
(3) (Corequisite: MRKT 453) Primarily designed as a practical course in measuring advertising effectiveness. Emphasis on understanding the dynamics of persuasion in an advertising context and developing projects focused on specific aspects of campaign strategies. Knowledge of basic techniques of statistical hypothesis testing is essential.

MRKT 480 International Marketing Management.
(3) (Prerequisites: MGCR 392 and MGCR 352) (Formerly MGMT 483) Marketing management considerations of a company seeking to extend beyond its domestic market. Required changes in product, pricing, channel, and communications policies. Attention to international trade and export marketing in the Canadian context.

MRKT 482 Senior Project in Marketing.
(3) (Restriction: Open only to U2 and U3 students.) A conceptual course requiring the application of advanced marketing concepts and principles in the analysis and solution of a problem or problems in an actual marketing situation.

ORGB 325 Negotiations and Conflict Resolution.
(3) (Restriction: Open only to U2 and U3 students.) A conceptual framework to guide participants through negotiation and conflict resolution process.

ORGB 380 Cross Cultural Management.
(3) (Restriction: Open only to U2 and U3 students.) Addresses dilemmas and opportunities that managers experience in international, multicultural environments. Development of conceptual knowledge and behavioural skills (e.g. bridging skills, communication, tolerance of ambiguity, cognitive complexity) relevant to the interaction of different cultures in business and organizational settings, using several methods including research, case studies and experiential learning.

ORGB 409 Organizational Research Methods.
(3) (Prerequisite: MGCR 222) Field research in organizational behaviour.

ORGB 420 Managing Organizational Teams.
(3) (Prerequisite: MGCR 222) Theory, research, and applications. Principles of team processes and effectiveness in organizational settings, specifically the theoretical developments and empirical findings of group dynamics and team effectiveness, and practical strategies and skills for successful management of organizational teams.

ORGB 421 Managing Organizational Change.
(3) (Prerequisite: MGCR 222) Organizational change theory and techniques are examined with an emphasis on techno-structural interventions such as Quality-of-Work-Life approaches. Through simulations and case-studies, the course explores initiatives in organizational change, primarily in contemporary Canadian organizations. It also includes opportunities for “hands-on” experience in work and organization redesign.

ORGB 423 Human Resources Management.
(3) (Prerequisite: MGCR 222) (Requirement for the Institute of Internal Auditors) Issues involved in personnel administration. Topics include: human resource planning, job analysis, recruitment and selection, training and development, performance appraisal, organization development and change, issues in compensation and benefits, and labour-management relations.

ORGB 424 Employment.
(3) (Prerequisite: ORGB 423) Reviews in sequence all aspects of the hiring of employees. Topics covered will include manpower planning, recruiting, selection, placement orientation, retirement and dehiring. Each area will be covered from legal, technical and theoretical perspectives.

ORGB 426 Human Resource Training and Development.
(3) (Prerequisite: ORGB 423) Planning, conceptualization, design, implementation and evaluation of training and career development programs. Review of the major techniques in each area. Training and development approached from a systems point of view.

ORGB 429D1 (3), ORGB 429D2 (3) Organizational Behaviour for Course Counsellors.
(Prerequisite: MGCR 222) (Students must register for both ORGB 429D1 and ORGB 429D2.) (No credit will be given for this course unless both ORGB 429D1 and ORGB 429D2 are successfully completed in consecutive terms) Examination of behaviour in organizations, coupled with training in teaching methods, to prepare students to team teach a section of MGCR 222. Selection of course counsellors is made toward the end of the preceding winter term. Only students thus selected will be permitted to register for this course.

ORGB 434 Topics in Organizational Behaviour 1.
(3) (Prerequisite: MGCR 222) This is an advanced course for students with a special interest in Organizational Behaviour. Topics will be selected from current issues or themes in literature.

ORGB 435 Women as Global Leaders and Managers.
(3) (Prerequisite: MGCR 222) Women are assuming leadership roles in many fields heretofore almost exclusively led by men. Yet even in the 1990s, less than 5% of international managers are women and less than 3% of international business cases portray women in leadership roles. This seminar will review the major trends affecting women’s power and influence in society in...
general and in organizations in particular. Participants will develop the vision, skills, and competencies needed for global leadership.

**ORGB 440 Career Theory and Development.**  
(3) (Prerequisite: MGCR 222) Includes state of the art theory and research on careers and opportunity for exploration and development of personal career goals and dreams. Analytical and practical skills are honed through the study of careers of “real life” individuals as presented in films, panels of guest speakers, and interview assignments.

**ORGB 525 Compensation Management.**  
(3) (Prerequisite (Undergraduate): ORGB 423) Compensation policies and practices, consistent with motivational theories, are examined. Topics include: design and evaluation of job evaluation systems, salary structures, and performance-based pay; compensation of special employee groups; and current pay equity laws. Projects and simulations provide “hands-on” experience in the use of compensation techniques.

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Schulich School of Music

MUÇO-Composition

Offered by: Music, Music Research

MUÇO 230 The Art of Composition.
(3) (Prerequisites: MUTH 150, MUTH 151, MUSP 140, MUSP 141, MUÇO 260) (Restriction: Open only to non-composition majors.) An introduction to compositional techniques and notational practices of the twentieth and twenty-first centuries, including the analysis of selected works.

MUÇO 240D1 (3), MUÇO 240D2 (3) Tonal Composition.
(3 hours) (Prerequisites: MUTH 110 and MUTH 111 OR their equivalent.) (Corequisites: MUSP 229 and MUSP 231 AND MUÇO 170 and MUÇO 171.) (Restriction: Open only to students in Composition) (Students must register for both MUÇO 240D1 and MUÇO 240D2.) (No credit will be given for this course unless both MUÇO 240D1 and MUÇO 240D2 are successfully completed in consecutive terms) A writing course based on the stylistic concepts and resources of European music -1770-1850 - and designed to develop control of factors such as phrase structure, melodic shape, rhythm, linear continuity, economy of means, notation, and basic contrapuntal procedures. Extensive and detailed analysis of characteristic forms.

MUÇO 245D1 (2), MUÇO 245D2 (2) Composition 1.
(2 hours) (Prerequisite: MUTH 150; or MUTH 110 and MUTH 111) (Corequisites: MUSP 240, MUSP 241 and MUSP 170 and MUSP 171; or MUSP 229 and MUSP 231 and MUSP 170 and MUSP 171) (Restriction: Open only to students in Composition) (Students must register for both MUÇO 245D1 and MUÇO 245D2.) (No credit will be given for this course unless both MUÇO 245D1 and MUÇO 245D2 are successfully completed in consecutive terms) 20th Century techniques and approaches. Basic dimensions such as pitch, rhythm and timbre, and their inter-relationship at all structural levels. Notation and score preparation. Performance practice. Analysis of selected 20th Century scores. Writing of short pieces for solo instruments and small ensembles, including voice.

MUÇO 260 Instruments of the Orchestra.
(3) (Prerequisites: MUTH 150 or MUTH 111 or MUJZ 160) (Restriction: Not open to students in the Major Composition) (Priority will be given to students in the Minor Composition and Special Students in the prerequisite package for Sound Recording. Other students may be admitted with permission of the instructor.) An introductory study of the instruments of string, woodwind and brass families, elementary acoustics of the instruments. Techniques of playing including embouchure, fingering, bowing, hand-stopping, transposing instruments. Evolution of the instruments, their technique and their music from the 18th century to the present.

MUÇO 261 Orchestration 1.
(2) (Prerequisites: MUTH 151, MUSP 141, MUSP 171; or MUÇO 260) The history of orchestration. Study of instrumentation and traditional orchestration. Reduction of orchestral scores for piano. Transcription of piano works for string quartet and string orchestra.

MUÇO 340D1 (2), MUÇO 340D2 (2) Composition 2.
(2 hours) (Prerequisite: MUÇO 245D1/D2) (Corequisites: MUSP 329 and MUSP 331) (Students must register for both MUÇO 340D1 and MUÇO 340D2) (No credit will be given for this course unless both MUÇO 340D1 and MUÇO 340D2 are successfully completed in consecutive terms) Free composition.

MUÇO 341 Digital Studio Composition 1.
(3) (3 hours lecture-demonstration and 3 hours studio time) (Prerequisite: MUÇO 245D1/D2 or MUÇO 230) Composition with MIDI, audio recording, digital audio signal processing software and hardware. Creation of small-scale composition studies using technological resources in the context of electroacoustic music. The hands-on activities will include critical listening and evaluation of electronic and computer music repertoire.

MUÇO 342 Digital Studio Composition 2.
(3) (3 hours lecture-demonstration and 3 hours studio time) (Prerequisite: MUÇO 341) Advanced composition with MIDI, audio recording, digital audio signal processing software and hardware. Creation of complete electroacoustic pieces and/or production of audio media materials.

MUÇO 360 Orchestration 2.
(2) (Prerequisite: MUÇO 261) Traditional orchestration through analysis. Transcription of piano works for woodwind quintet, brass quintet, wind orchestra and percussion ensemble. Scoring for classical orchestra.

MUÇO 373 Special Topic in Composition 1.
(3) (Prerequisites: MUHL 184, MUHL 185, MUTH 211 or MUÇO 240D1/D2, MUSP 231; or MUHL 186, MUHL 286, MUTH 250 or MUÇO 240D1/D2, MUSP 241) Special topic in composition.

MUÇO 374 Special Topic in Composition 2.
(3) (Prerequisites: MUHL 184, MUHL 185, MUTH 211 or MUÇO 240D1/D2, MUSP 231; or MUHL 186, MUHL 286, MUTH 250 or MUÇO 240D1/D2, MUSP 241) Special topic in composition.

MUÇO 440D1 (2), MUÇO 440D2 (2) Composition 3.
(2 hours) (Prerequisite: MUCO 340) (Students must register for both MUÇO 440D1 and MUÇO 440D2.) (No credit will be given for this course unless both MUÇO 440D1 and MUÇO 440D2 are successfully completed in consecutive terms) Free composition.

MUÇO 441 Special Projects: Composition.
(6) (2 hours) (Prerequisite: MUÇO 440)

MUÇO 441D1 (3), MUÇO 441D2 (3) Special Projects: Composition.
(Students must register for both MUÇO 441D1 and MUÇO 441D2.) (No credit will be given for this course unless both MUÇO 441D1 and MUÇO 441D2 are successfully completed in consecutive terms) (MUÇO 441D1 and MUÇO 441D2 together are equivalent to MUÇO 441)

MUÇO 460 Orchestration 3.
(2) (2 hours) (Prerequisite: MUÇO 240 and MUÇO 261; or MUÇO 360) Analysis of advanced orchestration techniques. Various orchestration theories and practices used by composers, particularly in the twentieth century including the study of extended techniques.

MUÇO 462 Advanced Tonal Writing.
(3) (Prerequisite: MUÇO 340D1/D2 or MUTH 350) Stylistic concepts and resources of European music including phrase structure, melodic shape, rhythm, linear continuity, economy of means, notation, and basic contrapuntal procedures. Extensive and detailed analysis of characteristic repertoire.

MUÇO 541 Advanced Digital Studio Composition 1.
(3) (Prerequisite: MUÇO 342 or permission of the instructor.) Advanced topics in digital studio composition. Aesthetics and poetics of electroacoustic composition. Analytical approaches to this repertoire. Use of digital signal processing and synthesis techniques. Creation of complete pieces incorporating music technology which may include a live performance component.

MUÇO 542 Advanced Digital Studio Composition 2.
(3) (Prerequisite: MUÇO 541.) Further advanced topics in digital studio composition culminating in a complete large-scale work incorporating music technology, including computer-assisted composition, analysis/resynthesis techniques, and new gestural controllers for live performance of digital musical instruments.

MUÇO 575 Topics in Composition.
(3) (Prerequisite: MUÇO 340D1/D2) (Topics will change from semester to semester.) Pitch systems, harmonic concepts and compositional techniques from the late 19th Century to the present.
MUEN-Ensemble
Offered by: Performance

MUEN 496 Opera Studio.
(2) (2 hours) (Prerequisite: Audition) (For undergraduates voice majors students cast in roles in Opera McGill productions.)
Coaching sessions, rehearsals, stagings, technical/dress rehearsals in the theatre, and performances in front of an audience.

MUEN 533 Vocal Chamber Ensemble.
(1) (Prerequisite: Audition) (Restriction: Open by audition to pianists and singers.) Vocal ensemble repertoire written after 1800.

MUEN 554 Opera Excerpts.
(2) (Prerequisite: Audition) Opera scenes from all periods; including Baroque, Classical, 19th and 20th century, and new works from this century in original languages.

MUEN 556 Introduction to Collaborative Piano 1.
(1) (2 hours) (Prerequisite: Audition) (Restriction: Not open to students who have taken MUEN 583) (Open to singers and pianists.) Basic techniques of ensembles, including vocal accompanying, piano duos, instrumental duos and chamber ensemble work. Ensemble score-reading, preparation and performance analysis.

MUEN 557 Introduction to Collaborative Piano 2.
(1) (Prerequisite: Audition) Developing the collaborative performance. Masterclass-style coaching of assignments in vocal accompanying, piano duos, instrumental duos and chamber ensemble work. Further ensemble score-reading, preparation and performance analysis.

MUEN 560 Chamber Music Ensemble.
(1)

MUEN 561 2nd Chamber Music Ensemble.
(1) (Prerequisite: Audition) Chamber music of the Medieval, Renaissance and Baroque periods.

MUEN 563 Jazz Vocal Workshop.
(2)

MUEN 567 Beethoven Orchestra.
(1) (Prerequisite: Audition) (Note: Open to all students registered at McGill.) A reading orchestra that also functions as a conductor's workshop orchestra. Repertoire includes the complete Beethoven Symphonies.

MUEN 568 Multiple Ensemble 1.
(1)

MUEN 570 Jazz Combo.
(1) (1 hour) (Prerequisite: Audition.) A Jazz Improvisation Ensemble of approximately 4 to 9 players.

MUEN 571 Contemporary Improvisation Ensemble.
(1) (Prerequisite: Audition.) (Restriction: Open to advanced performance majors.) Ensembles of 4-6 players will explore the creative performance practice of improvisatory contemporary music.

MUEN 572 Cappella Antica.
(2) (4 hours) (Prerequisite: Audition.) An ensemble of 8 to 12 voices specializing in early music. N.B. This ensemble may substitute as a Basic Ensemble in programs that specify Choral Ensemble, with Departmental approval.

MUEN 573 Baroque Orchestra.
(2) (4 hours) (Prerequisites: Audition AND MUEN 480 AND a prerequisite or corequisite of MUPP 381. Additional prerequisite for keyboard players: MUPG 372 with a grade of A-) Open to singers and instrumentalists. This ensemble specializes in chamber music primarily of the Baroque era.

MUEN 578 Song Interpretation 1.
(1) (2 hours) (Prerequisite: Audition.) Normally open only to Voice and Piano Performance students. Study of the standard song repertoire with emphasis on the singer and pianist as partners. A public recital will be given at the end of each term.

MUEN 579 Song Interpretation 2.
(1)

MUEN 580 Early Music Ensemble.
(1) (Prerequisite: Audition. Prerequisite or corequisite for keyboard players: MUPG 272.) An ensemble of 4-6 vocalists and instrumentalists which performs music of the Medieval, Renaissance and Baroque periods.

MUEN 581 Piano Ensemble Seminar 1.
(1) (1 hour) (Prerequisite: Piano Concentration 1 Examination or Audition.) Concentration on interpretation and performance of piano duet and two piano repertoire.

MUEN 582 Piano Ensemble Seminar 2.
(1) (Prerequisite: MUEN 581 or permission of the instructor.) Ensemble playing in two-piano and piano 4-hand repertoire.

MUEN 584 Studio Accompanying.
(1) (4 hours) (Prerequisite: MUEN 583 formerly MUEN 483) or MUEN 556. Highly qualified accompanists will be assigned to work independently with studio teachers and their students.

MUEN 585 Sonata Masterclass.
(1) (Prerequisite: MUEN 583 formerly MUEN 483) or MUEN 556; or permission of the instructor) (Restriction: Limited to 4 advanced pianists and 4 instrumentalists.) Exploration of the vast literature for sonatas with piano and instrument, including multiple issues of ensemble preparation and performing.

MUEN 586 Opera Coaching.
(1) (3-6 hours) (Prerequisite: open to advanced pianists by audition and with the approval of Director of Opera Studies; may be repeated for credit) Supervised playing of scenes and productions; repetiteur and rehearsal pianist responsibilities; playing of performance operatic scenes.

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MUEN 587 Cappella McGill.
(2) (4 hours) (Prerequisite: Audition.) (Note: May be taken instead of Choral Ensemble.) An ensemble of 16 voices performing challenging repertoire from the Renaissance to the present day. Since the expectation is a level of performance equivalent to a professional chamber ensemble, singers wishing to join this group should have had considerable ensemble experience, and advanced vocal and sight-reading skills.

MUEN 588 Multiple Ensemble 2.
(1) .

MUEN 589 Woodwind Ensembles.
(1) (2-3 hours) (Prerequisite: Audition) .

MUEN 590 McGill Winds.
(2) (4-6 hours) (Prerequisite: Audition) .

MUEN 591 Brass Consort.
(1) (2-3 hours) (Prerequisite: Audition.) An in-depth exploration of full-scale works for a brass ensemble (horns, trumpets, trombones and tuba) by composers such as R. Strauss, Wagner, Holst and Bernstein, along with contemporary composers.

MUEN 592 Chamber Jazz Ensemble.
(2) (Restriction: Open to Jazz Performance students only.) This ensemble will deal with the extensive repertoire of music which exists for small jazz orchestra (9-13 instruments).

MUEN 593 Choral Ensembles.
(2) (4 hours) (Prerequisite: Audition.) (Section 001 Chamber Singers: a group of approximately 24 mixed voices which explores the a cappella repertoire of all periods as well as works with chamber accompaniment.) (Section 002 Concert Choir: an ensemble of approximately 60 voices (S.A.T.B.) which performs the repertoire from all periods appropriate to a group of this size.) (Section 003 University Chorus: a mixed chorus of approximately 100 which performs a variety of choral material including both traditional and popular selections.) (Section 004 Women's Choral: an ensemble of approximately 40 women stressing the fundamentals of singing and ensemble participation.) Students enrolling in Choral Ensembles will be assigned to one of the above groups.

MUEN 594 Contemporary Music Ensemble.
(2) (4 hours) (Prerequisite: Audition) .

MUEN 595 Jazz Ensembles.
(2) (3-4 hours) (Prerequisite: Audition) .

MUEN 596 Opera Repetiteur.
(2) (6 hours) (Restriction: Open by audition to advanced pianists, and to students in conducting, who are interested in training as operatic coaches. Students enrolled for piano instruction at McGill must also have their practical teacher's approval) Supervised coaching of singers, and playing of scenes and productions; rehearsal pianists and backstage conducting responsibilities.

MUEN 597 Orchestral Ensembles.
(2) (6 - 7 hours) (Prerequisite: Audition.) .

MUEN 598 Percussion Ensembles.
(1) (2-3 hours) .

MUGT-General Music Techniques

Offered by: Music Research

MUGT 205 Psychology of Music.
(3) .

MUGT 215 Basic Conducting Techniques.
(1) (1 hour) (Prerequisites: MUTH 110, MUTH 111, MUSP 129 or MUSP 129D1/D2; or MUTH 150, MUSP 140) Development of basic manual dexterity and rehearsal skills. Topics include: preparatory posture, establishing tempo, releases, simple duple and triple metre beat patterns, cueing, dynamics, fermata, transposition, terminology, score preparation, and listening.

MUGT 301 Technology and Media for Music Education.
(3) (3 hours) Introduction to the use of microcomputers and electronic music instruments in the music classroom and in individualized instruction. Topics include: computer-assisted instruction, MIDI, sequencing and notation software, hard disk recording, NICT, and object-oriented authoring software.

MUHL-Music History and Literature

Offered by: Music Research

MUHL 184 History Survey Before 1750.
(3) (Corequisites: MUTH 110 and MUSP 129 OR permission of instructor) Representative works from the Carolingian Renaissance to 1750 and their relation to the social and cultural milieu. Basic reference works. Developments in notation, instruments, and performance practice.

MUHL 185 History Survey After 1750.
(3) (Corequisites: MUTH 111 and MUSP 131 OR permission of instructor) Historical and stylistic investigation of music and musical life from circa 1750 to the present, i.e., the transition to the Classical period, the period of C.P.E. Bach and the Mannheim, Berlin, and Viennese symphonists, to recent developments, including electronic and music technology.

MUHL 186 Western Musical Traditions.
(3) (3 hours) A survey of Western music from the Middle Ages to the present. Emphasis on key musical concepts and genres in their historical context and aural recognition of style.

MUHL 286 Critical Thinking About Music.
(3) (Prerequisite: MUHL 186 or MUZ 187) (Restriction: Not open to students who have taken MUTH 301) Examination of various periods and styles: e.g., central works from different traditions, the interaction of music and society, performance practice, and music's relation to other arts.

(3) (3 hours) (Prerequisite: MUHL 286; or MUHL 185; or permission of the instructor) (Restriction: Not open to students who have taken MUHL 220 and MUAR 250.) A cross-cultural exploration of women's musical achievements in various historical periods. Develops understanding of both music and the
social, political, and cultural forces shaping it. Music includes: sacred, love songs, opera, contemporary instrumental composition, and improvised genres with study organized around topics like authorship, genius/virtuosity, voice, body, power and technology.

MUHL 330 Music and Film.
(3) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) The transition of music for films, and its changing styles (symphonic, jazz, pop compilation) from the silent era to today. Includes study of major film composers in North America and other traditions; analysis of the role of music in cinematic narrative, expression and symbolism.

MUHL 342 History of Electroacoustic Music.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) History, criticism, and analysis of twentieth-century repertoires of popular music. Detailed examination of special topics. These include genre and style in 1970s rock and soul, history of the Broadway musical, approaches to the transcription of pop music, and/ or constructions of race and gender in music video.

MUHL 362 Popular Music.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) Survey of the repertoire for keyboard 1750-1850: the instruments, Empfindsamkeit, galant style, London, Paris, Vienna, the Czech school, Haydn, Mozart, Beethoven, sonatas, variations, character pieces, "high" and "low" salon music, virtuosos and the virtuoso repertoire, Schubert, Chopin, Schumann, Mendelssohn, early Liszt.

MUHL 366 The Era of the Fortepiano.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) History, criticism, and analysis of twentieth-century repertoires of popular music. Detailed examination of special topics. These include genre and style in 1970s rock and soul, history of the Broadway musical, approaches to the transcription of pop music, and/or constructions of race and gender in music video.

MUHL 372 Solo Song Outside Germany and Austria.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) Topics in American and European non-German song repertoire from the eighteenth century to the present. Issues discussed may include the role of song in national music culture, art song and folk song, national styles and poetic traditions, text-music relationships, and performance practice.

MUHL 373 Special Topic.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) The period covered will be from approximately 1740-1828, from the schools of the Italian keyboard composers, opera buffa and seria, and composers centred at Mannheim, Paris, London, Berlin and Vienna, through the Viennese Classic period of Haydn, Mozart and Beethoven, to the death of Schubert.

MUHL 374 Special Topic.
(3) (Summer) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) History of opera from its origins in the musical, literary, and philosophical models available to the Florentine Camerata to the end of the baroque. The development of opera will be studied from the perspective of artistic style and in the light of historical, political, social, and economic conditions.

MUHL 380 Medieval Music.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) The musical repertoire of the Middle Ages will be examined. This will include, among other things, liturgical chants, Notre Dame, the medieval motet, secular music, and instrumental literature.

MUHL 381 Renaissance Music.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) The development of music in the Renaissance, including its origins in the musical, literary, and philosophical models available to the Florentine Camerata to the end of the baroque. The period covered will be from approximately 1740-1828, from the schools of the Italian keyboard composers, opera buffa and seria, and composers centred at Mannheim, Paris, London, Berlin and Vienna, through the Viennese Classic period of Haydn, Mozart and Beethoven, to the death of Schubert.

MUHL 382 Baroque Music.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) The development of music in the Baroque, including its origins in the musical, literary, and philosophical models available to the Florentine Camerata to the end of the baroque. The period covered will be from approximately 1740-1828, from the schools of the Italian keyboard composers, opera buffa and seria, and composers centred at Mannheim, Paris, London, Berlin and Vienna, through the Viennese Classic period of Haydn, Mozart and Beethoven, to the death of Schubert.

MUHL 383 Classical Music.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) The development of music in the Classical, including its origins in the musical, literary, and philosophical models available to the Florentine Camerata to the end of the baroque. The period covered will be from approximately 1740-1828, from the schools of the Italian keyboard composers, opera buffa and seria, and composers centred at Mannheim, Paris, London, Berlin and Vienna, through the Viennese Classic period of Haydn, Mozart and Beethoven, to the death of Schubert.

MUHL 384 Romantic Music.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) The development of music in the Romantic, including its origins in the musical, literary, and philosophical models available to the Florentine Camerata to the end of the baroque. The period covered will be from approximately 1740-1828, from the schools of the Italian keyboard composers, opera buffa and seria, and composers centred at Mannheim, Paris, London, Berlin and Vienna, through the Viennese Classic period of Haydn, Mozart and Beethoven, to the death of Schubert.

MUHL 385 Early Twentieth-Century Music.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) The development of music in the Early Twentieth-Century, including its origins in the musical, literary, and philosophical models available to the Florentine Camerata to the end of the baroque. The period covered will be from approximately 1740-1828, from the schools of the Italian keyboard composers, opera buffa and seria, and composers centred at Mannheim, Paris, London, Berlin and Vienna, through the Viennese Classic period of Haydn, Mozart and Beethoven, to the death of Schubert.
discussed.

MUHL 386 Chamber Music Literature.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) The course will concentrate on the forms and media for chamber ensembles during the 18th, 19th and 20th centuries: accompanied sonatas, duos, trios, quartets, quintets, sextets, divertimenti, and works for small chamber orchestra. Major works of the most representative composers will be discussed.

MUHL 387 Opera from Mozart to Puccini.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) Major early twentieth-century works by Debussy, Stravinsky, Bartók, Stravinsky and Schoenberg. Opera in Europe between the Wars including operas of Berg, Milhaud, Krenek, Hindemith and Weill. Politics, sociology, and literature in relationship to musical style. Approaches since 1945 in selected works by Britten, Henze, Zimmermann, Ligeti, Somers and Glass.

MUHL 389 Orchestral Literature.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) Study of the literature for orchestra alone, composed since the early 18th Century. The material will be divided as follows: 1) orchestral music to the time of Beethoven; 2) orchestral music from 1800 to 1860; 3) orchestral music from 1860 to 1900; 4) orchestral music of the 20th Century.

MUHL 390 The German Lied.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) Survey of the German Lied from the late eighteenth to the early twentieth century, focusing on songs and song cycles by Schubert, Schumann, Brahms, Wolf, Mahler, Schoenberg, Berg, and Webern. Topics include text, musical form and text-music relationships, melodic style and harmonic organization, accompaniment, and performance practice.

MUHL 391 Canadian Music.
(3) (3 hour) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) Survey of music in Canada from the 16th Century to the present. Current musical organizations and institutions, and contemporary Canadian music will be stressed. Time permitting, brief reference will be made to the folk music of indigenous and immigrant groups.

MUHL 392 Music since 1945.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) Appearance and evolution of such post-war phenomena as total serialism, “chance” music of various kinds, and electronic music as seen in major figures such as Boulez, Stockhausen, Cage and others in Europe and the United States. Important developments during the 1960s. Rise of “minimalism” and “neo-Romanticism” during the 1970s and 80s.

MUHL 393 History of Jazz.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) (Prerequisite for Jazz Performance Majors: permission of instructor) The evolution of jazz from its origins to the present day. The course centers upon musical issues and will include careful analysis of style based upon recordings, live performances and transcriptions. Ragtime, blues, the Twenties, big-band, swing, bebop, cool, third stream, hard bop and free jazz will be explored.

MUHL 395 Keyboard Literature before 1750.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) The solo repertoire for organ, harpsichord, and clavichord from 1400 to 1750: intabulation, cantus firmus treatment, indigenous keyboard genres, German organ literature, French harpsichord repertoire.

MUHL 396 Era of the Modern Piano.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) Survey of keyboard repertoire from 1850 to the present: instruments, the crisis at mid-century, character pieces, Brahms, late Liszt, national schools, commercialization - the concert hall, music for the bourgeois - salon music, Scriabin, the Second Viennese School, Impressionism, Neo-Classicism, Neo-Romanticism, serialism, the sonata in the 20th-century, North American composers.

MUHL 397 Choral Literature after 1750.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) Study of wind ensemble music from Handel to Xenakis as it evolved under the influences of changing musical taste and technological advance. Topics include wind chamber music, music of the French Revolution, the 19th-century military band and the development of school, college and professional bands since 1900.

MUHL 475 Special Project.
(3) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) For details contact the Department of Theory.

MUHL 475D1 (1.5), MUHL 475D2 (1.5) Special Project.
(Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) (Students must register for both MUHL 475D1 and MUHL 475D2.) (No credit will be given for this course unless both MUHL 475D1 and MUHL 475D2 are successfully completed in consecutive terms) (MUHL 475D1 and MUHL 475D2 together are equivalent to MUHL 475) For details contact the Department of Theory.

MUHL 475N1 (1.5), MUHL 475N2 (1.5) Special Project.
(Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) (Students must also register for MUHL 475N2) (No credit will be given for this course unless both MUHL 475N1 and MUHL 475N2 are successfully completed in the same calendar year) (MUHL 475N1 and MUHL 475N2 together are equivalent to MUHL 475) For details contact the Department of Theory.

MUHL 476 Special Project.
(6) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) For details contact the Department of Theory.

MUHL 529 Proseminar in Musicology.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) (Restriction: open to all students in a Major or Honours program in Music History, and to students in other programs by permission of instructor) (Normally alternates with MUHL 591) Study of selected methodologies in musicology through critical examination of significant texts. Topics may include approaches to historiography, biography, editing and source studies, as well...
as aesthetics, literary criticism, semiology, feminist musicology, and ideology critique. Works by Adorno, Dahlhaus, Kerman, McClary, Meyer, Nattiez, and Subotnik, among others, will be addressed.

MUIN 570 Research Methods in Music.
(3) (3 hours) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240 and MUSP 231. Additional prerequisite: one MUHL or MUPP course at the 300 level or higher, or permission of instructor.) Survey and critical evaluation of research- and performance-related tools: composers' collected editions, monuments of music, bibliographies of music and music literature, discographies, directories, and databases. Topics will include: developing bibliographies, structuring written arguments, assessing academic and popular writings about music, and understanding the task of the music editor.

MUHL 591D1 (1.5), MUHL 591D2 (1.5) Paleography.
(1 hour) (Prerequisites: MUHL 184 and MUHL 185 and MUTH 211 OR MUCO 240D1/D2 and MUSP 231 OR MUHL 286 and MUTH 250 and MUSP 241) (Restriction: U3 honours students in History) (Normally alternates with MUHL 529) (Students must register for both MUHL 591D1 and MUHL 591D2) (No credit will be given for this course unless both MUHL 591D1 and MUHL 591D2 are successfully completed in consecutive terms) The theory and practice of musical transcription for the period 1100 to 1600. Black modal notation, Franco-Belgian notation, French and Italian Ars Nova notation, Mannerism, white mensural notation, proportions, and lute and keyboard tablatures will be studied.

MUIN-Practical Instrument
Offered by: Performance

MUIN 110 Elective Practical Instruction 1.
(2)

MUIN 111 Elective Practical Instruction 2
(2)

MUIN 120 Practical Instruction 1.
(2) (1 hour) (Prerequisite: Admission to the B.Mus. program by audition) (Restriction: Open to students entering directly from High Schools outside Quebec.)

MUIN 121 Practical Instruction 2.
(2) (1 hour) (Prerequisite: MUIN 120) (Restriction: Open to transfer students and high school students entering directly from outside Quebec.)

MUIN 130 Performance Practical Instruction 1.
(4) (1 hour) (Prerequisite: Admission to the B.Mus.) (Performance program by audition) (Restriction: Open to students entering directly from high school outside Quebec.)

MUIN 131 Performance Practical Instruction 2.
(4) (1 hour) (Prerequisite: MUIN 130) (Restriction: Open to transfer students and high school students entering directly from outside Quebec.)

MUIN 180 BMus Practical Lessons 1.
(3) (3 hours) (Prerequisite: Admission to the B.Mus. program by audition.) Practical instruction on an instrument or voice.

MUIN 181 BMus Practical Lessons 2.
(3) (Prerequisite: MUIN 180) (Restriction: Open to students entering directly from High Schools outside Quebec.) Practical instruction on an instrument or voice.

MUIN 210 Elective Practical Instruction 3.
(2)

MUIN 211 Elective Practical Instruction 4.
(2)

MUIN 220 Practical Instruction 3.
(2) (1 hour) (Prerequisite: MUIN 121)

MUIN 221 Practical Instruction 4.
(2) (1 hour) (Prerequisite: MUIN 220).

MUIN 222 Concentration 1 Examination.
(0)

MUIN 230 Performance Practical Instruction 3.
(4) (1 hour) (Prerequisite: MUIN 131)

MUIN 231 Performance Practical Instruction 4.
(4) (1 hour) (Prerequisite: MUIN 230)

MUIN 232 Performance 1 Examination.
(0) (Note: Complete descriptions are to be found under Examinations and Goals in Practical Subjects in the Music Chapter of the University Calendar.)

MUIN 250 L.Mus. Practical Instruction 1.
(8) (1 hour) (Prerequisite: Admission to the L.Mus. program by audition)

MUIN 251 L.Mus. Practical Instruction 2.
(8) (1 hour) (Prerequisite: MUIN 250)

MUIN 252 L.Mus. Performance 1 Examination.
(0) (Note: Complete descriptions are to be found under Examinations and Goals in Practical Subjects in the Music Chapter of the University Calendar.)

MUIN 269 Classical Concerto Exam.
(1) (1 hour) (Prerequisite: MUIN 232) Performance by memory before jury of a concerto from the Classical period.

MUIN 280 BMus Practical Lessons 3.
(3) (Prerequisite: MUIN 181 or admission to the B.Mus. program by audition.) Practical instruction on an instrument or voice.

MUIN 281 BMus Practical Lessons 4.
(3) (Prerequisite: MUIN 280) Practical instruction on an instrument or voice.

MUIN 282 BMus Performance Examination 1.
(0) (Exam details are to be found under Examinations and Goals in Practical Subjects in the Music Chapter of the University Calendar.) Assessment of student's progress in the practical area.

MUIN 283 BMus Concentration Final Examination.
(0) (Exam details are to be found under Examinations and Goals in Practical Subjects in the Music Chapter of the University Calendar.) Assessment of student's progress in the practical area.

MUIN 300 Voice Coaching 1.
(2)

MUIN 301 Voice Coaching 2.
(2)

MUIN 320 Practical Instruction 5.
(2) (1 hour) (Prerequisite: MUIN 221)

MUIN 321 Practical Instruction 6.
(2) (1 hour) (Prerequisite: MUIN 320).

MUIN 322 Concentration 2 Examination.
(0) (Note: Complete descriptions are to be found under Examinations and Goals in Practical Subjects in the Music Chapter of the University Calendar.)

MUIN 330 Performance Practical Instruction 5.
(4) (1 hour) (Prerequisite: MUIN 231)

MUIN 331 Performance Practical Instruction 6.
(4) (1 hour) (Prerequisite: MUIN 330).

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses taught only in alternate years.
† Denotes courses not available as Education electives.
‡ Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
✦ Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
◆ Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
MUIN 332 Performance 2 Examination.
(0) (Note: Complete descriptions are to be found under Examinations and Goals in Practical Subjects in the Music Chapter of the University Calendar.)

MUIN 333 Piano Techniques 2.
(0) (pass/fail) (Mandatory test for pianists to be taken prior to the Performance 2 Exam.)

MUIN 340 Honours Practical Instruction 5.
(4) (1 hour) (Prerequisite: MUIN 231)

MUIN 341 Honours Practical Instruction 6.
(4) (1 hour) (Prerequisite: MUIN 340).

MUIN 342 Honours Performance 2 Examination.
(0) (Note: Complete descriptions are to be found under Examinations and Goals in Practical Subjects in the Music Chapter of the University Calendar.)

MUIN 350 L.Mus. Practical Instruction 3.
(8) (1 hour) (Prerequisite: MUIN 251)

MUIN 351 L.Mus. Practical Instruction 4.
(8) (1 hour) (Prerequisite: MUIN 350).

MUIN 352 L.Mus. Performance 2 Examination.
(0) (Note: Complete descriptions are to be found under Examinations and Goals in Practical Subjects in the Music Chapter of the University Calendar.)

MUIN 369 Concerto.
(0) (pass/fail) (Mandatory test for pianists)

MUIN 380 BMus Practical Lessons 5.
(3) (Prerequisite: MUIN 281) Practical instruction on an instrument or voice.

MUIN 381 BMus Practical Lessons 6.
(3) (Prerequisite: MUIN 380) Practical instruction on an instrument or voice.

MUIN 382 BMus Performance Examination 2.
(0) (Exam details are to be found under Examinations and Goals in Practical Subjects in the Music Chapter of the University Calendar.) Assessment of student's progress in the practical area.

MUIN 400 Voice Coaching 3.
(2) (Restriction: Open only to students in the Artist Diploma in Voice program.) A course in which the student will have individual coaching sessions on repertoire, with emphasis in musical and linguistic nuance.

MUIN 401 Voice Coaching 4.
(2) (Restriction: Open only to students in the Artist Diploma in Voice program.) Continued individual coaching sessions on repertoire, with emphasis in musical and linguistic nuance.

MUIN 430 Performance Practical Instruction 7.
(4) (1 hour) (Prerequisite: MUIN 331)

MUIN 431 Performance Practical Instruction 8.
(4) (1 hour) (Prerequisite: MUIN 430)

MUIN 432 Performance 3 Examination.
(0) (Note: Complete descriptions are to be found under Examinations and Goals in Practical Subjects in the Music Chapter of the University Calendar.)

MUIN 433 Piano Techniques 3.
(0) (pass/fail) (Mandatory test for pianists to be taken prior to the Performance 3 Exam.)

MUIN 440 Honours Practical Instruction 7.
(4) (1 hour) (Prerequisite: MUIN 341)

MUIN 441 Honours Practical Instruction 8.
(4) (1 hour) (Prerequisite: MUIN 440).

MUIN 442 Honours Performance 3 Examination.
(0) (Note: Complete descriptions are to be found under Examinations and Goals in Practical Subjects in the Music Chapter of the University Calendar.)

MUIN 450 L.Mus. Practical Instruction 5.
(8) (1 hour) (Prerequisite: MUIN 351)

(8) (1 hour) (Prerequisite: MUIN 450).

MUIN 452 L.Mus. Performance 3 Examination.
(0) (Note: Complete descriptions are to be found under Examinations and Goals in Practical Subjects in the Music Chapter of the University Calendar.)

MUIN 460 Artist Diploma Practical Instruction 1.
(8) (1.5 hours) (Prerequisite: admission to the Artist Diploma program by audition.)

MUIN 461 Artist Diploma Practical Instruction 2.
(8) (1.5 hours) (Prerequisite: MUIN 460).

MUIN 462 Artist Diploma Recital 1.
(0) (Note: Complete descriptions are to be found under Examinations and Goals in Practical Subjects in the Music Chapter of the University Calendar.)

MUIN 469 Artist Diploma Concerto 1.
(1) (Prerequisite: MUIN 460)

MUIN 480 BMus Practical Lessons 7.
(3) (Prerequisite: MUIN 381) Practical instruction on an instrument or voice.

MUIN 481 BMus Practical Lessons 8.
(3) (Prerequisite: MUIN 480) Practical instruction on an instrument or voice.

MUIN 482 BMus Performance Examination 3.
(0) (Exam details are to be found under Examinations and Goals in Practical Subjects in the Music Chapter of the University Calendar.) Assessment of student's progress in the practical area.

MUIN 560 Artist Diploma Practical Instruction 3.
(8) (1.5 hours) (Prerequisite: MUIN 461)

MUIN 561 Artist Diploma Practical Instruction 4.
(8) (1.5 hours) (Prerequisite: MUIN 560).

MUIN 562 Artist Diploma Recital 2.
(0) (Complete descriptions are to be found under Examinations and Goals in Practical Subjects in the Music Chapter of the University Calendar.)

MUIN 563 Artist Diploma Recital 3.
(0) (Complete descriptions are to be found under Examinations and Goals in Practical Subjects in the Music Chapter of the University Calendar.) (Restriction: Not open to students who have taken MUIN 562 prior to 200509.)

MUIN 569 Artist Diploma Concerto 2.
(1) (Prerequisite: MUIN 469)

MUIN-Instrumental Techniques

Offered by: Music Research

MUIN 201 String Techniques.
(3) (3 hours and 2 hours lab) (Corequisites: MUTH 110 or MUTH 111 AND MUSP 129 or MUSP 131 AND MUHL 184 or MUHL 185.) The fundamental techniques in performance of four common stringed instruments, i.e., violin, viola, cello, and bass. Principles of sound production on stringed instruments, historical development of the strings, purchase of new and used instruments, maintenance and repairs, teaching procedures and reference materials.

MUIN 202 Woodwind Techniques.
(3) (3 hours and 2 hours lab) (Corequisites: MUTH 110 or MUTH 111 AND MUSP 129 or MUSP 131 AND MUHL 184 or MUHL 185.) The fundamental techniques in performance of five common woodwind instruments, i.e., clarinet, flute, oboe, bassoon, and saxophone. Principles of sound production, historical development of the woodwinds, purchase of new and used instruments, maintenance and repairs, teaching procedures and reference materials.

MUIN 203 Brass Techniques.
(3) (3 hours and 2 hours lab) (Corequisites: MUTH 110 or MUTH 111 AND MUSP 129 or MUSP 131 AND MUHL 184 or MUHL 185.) The fundamental techniques in performance of five common brass instruments, i.e., trumpet, horn, trombone, baritone, and tuba. Principles of sound production, historical development of the brass, purchase of new and used instruments, maintenance and repairs, teaching procedures and reference materials.

MUIN 204 Percussion Techniques.
(3) (3 hours and 2 hours lab) (Corequisites: MUTH 110 or MUTH 111 AND MUSP 129 or MUSP 131 AND MUHL 184 or MUHL 185.) The fundamental techniques in performance of percussion instruments commonly in use in symphonic bands and orchestras. Principles of sound production, historical development of the percussion, purchase of new and
used instruments, maintenance and repairs, teaching procedures and reference materials.

MUJ 250 Guitar Techniques.
(3) (3 hours) (Corequisites: MUTH 110 or MUTH 111 AND MUSP 129 or MUSP 131 AND MUHL 184 or MUHL 185.) The fundamental techniques in guitar performance. Basic principles of beginning and intermediate pedagogy, sound production, historical development of the instrument, purchase of new and used instruments, maintenance and repair, and teaching materials and repertoire for solo and ensemble performance.

MUJ 302 Advanced Wind Techniques.
(3) (3 hours and 2 hours lab) (Prerequisites: MUIT 202, MUIT 203.) Continued exploration of brass and woodwind pedagogy. Methods for developing technique and musical sensitivity in beginning and intermediate performers will be explored through in-depth study of heterogeneous and homogeneous instrumental methods. Skill on secondary instruments and diagnostic and prescriptive teaching abilities will be extended through Lab performances and individual coaching projects.

MUJ 315 Instrumental Conducting.
(3) (3 hours and 2 hours lab) (Prerequisites: MUTH 211, MUSP 229, MUGT 215, MUIT 201 or MUIT 250, MUIT 202, MUIT 203, MUIT 204.) (Restriction: Open to non-music education students with permission of instructor.) The fundamental skills of instrumental conducting, including baton technique, score analysis, and rehearsal procedures; conducting materials are selected from representative orchestral works.

MUJ 356 Jazz Instruction: Philosophy and Techniques.
(3) (3 hours) (Prerequisites: MUIT 202, MUIT 203, MUIT 204. May be taken by Jazz Performance students with approval of instructor.) Introduction to techniques for the development of school and community-based jazz programs. Topics will include: philosophy of jazz instruction, rhythm section, musical materials, techniques to develop improvisation and aural skills, jazz styles, score preparation, rehearsal techniques, and administration of jazz programs. Will include observation of rehearsals and coaching opportunities.

MUJ-Jazz Studies
Offered by: Performance, Music Research

MUJ 160 Jazz Materials 1.
(3) (4 hours) (Prerequisite: none. Open to non-jazz majors, space permitting, but not for elective credit in B.Mus. or Artist Diploma programs) Fundamental aural and theoretical skills associated with the jazz idiom. Nomenclature, chord construction, chord/scale relationships, harmonic progression, circle of 5ths, simple turnarounds, simple substitution, symmetrical scales and chord relationships, voice leading.

MUJ 161 Jazz Materials 2.
(3) (4 hours) (Prerequisite: MUJ 160. Open to non-jazz majors, space permitting, but not for elective credit in B.Mus. or Artist Diploma programs) Basic piano skills, basic comping techniques, borrowed chords, reharmonisation, modes of harmonic minor and melodic minor diatonic systems, unresolved tensions, odd and infrequent modulations, mixed two-five-ones, introduction to polychords, slashchords and non-functional harmony.

MUJ 170 Jazz Keyboard Proficiency 1.
(1) (1 hour) (Prerequisite: none. Open only to Jazz Performance Majors. May not be taken for elective credit in B.Mus. or Artist Diploma programs) Basic piano skills, standard 3 note rootless voicings in 7, 3, and 7 position with one extension, two-five-ones in major and minor - limited keys. Simple substitution and reharmonisation.

MUJ 171 Jazz Keyboard Proficiency 2.
(1) (1 hour) (Prerequisite: MUJ 170. Open only to Jazz Performance Majors. May not be taken for elective credit in B.Mus. or Artist Diploma programs) Continued of previous semester. Two-five-ones and mixed two-five-ones using 4 note close position voicings and 4 and 5 note spreads, in all keys, diminished passing chords, half step shifts, voice leading extensions, quartal and modal voicing, sight reading of standard jazz repertoire.

MUJ 187 Jazz History Survey.
(3) (3 hours) An introductory study of the principal recordings, artists and musical trends in jazz from its origins to the present day.

MUJ 213 Non-Performance Jazz Improvisation 1.
(3) (Prerequisites: MUTH 110, MUTH 111, MUSP 129, MUSP 131.) (Note: Open to jazz instrumentalists who are not in Performance programs, with preference given to Jazz Concentration students.) Introduction to basic improvisation concepts of phrasing, articulation, melodic development, harmonic control, musical vocabulary and style. Pedagogical techniques will be discussed.

MUJ 214 Non-Performance Jazz Improvisation 2.
(3) (Prerequisite: MUJ 213 or permission of instructor.) (Note: Open to jazz instrumentalists who are not in Performance programs, with preference given to Jazz Concentration students.) A continuation of development of basic improvisation concepts of phrasing, articulation, melodic development, harmonic control, musical vocabulary and style. Pedagogical techniques will be discussed.

MUJ 223 Jazz Improvisation/Musicianship 1.
(3) (3 hours) (Prerequisite: none.) (Restriction: Open only to Jazz Performance Majors) Basic improvisational concepts with emphasis on time feel, phrasing, articulation, melodic development, voice leading, harmonic control and stylistic nuance. Memorization and aural recognition of standard jazz repertoire also stressed. The aural tradition of the music is emphasized through rhythmic/melodic dictation.

MUJ 224 Jazz Improvisation/Musicianship 2.
(3) (3 hours) (Prerequisite: MUJ 223.) (Restriction: Open only to Jazz Performance Majors) Continuation of Jazz Improvisation/Musicianship MUJ 223.

MUJ 260 Jazz Arranging 1.
(3) (Corequisite: MUJ 224.) (Restriction: Open only to Jazz Performance Majors. Not open to students who have taken MUJ 261D1/D2.) Introduction to concepts and techniques commonly used in jazz arranging. Notation, calligraphy and score preparation are discussed; including study of classical and contemporary scores by prominent jazz arrangers.

MUJ 261 Jazz Arranging 2.
(3) (Prerequisite: MUJ 260.) (Corequisite: MUJ 224.) (Restriction: Open only to Jazz Performance Majors. Not open to students who have taken MUJ 261D1/D2.) Consolidation of knowledge of basic concepts and techniques used in jazz arranging.

MUJ 340 Jazz Composition 1.
(3) (Prerequisites: MUJ 224, MUJ 260, MUJ 261.) (Restriction: Open only to Jazz Performance Majors. Not open to students who have taken MUJ 340D1/D2.) Jazz composition based on the stylistic concepts of leading jazz composers. Development of a personal and creative compositional style and of control of factors such as rhythm, harmonic, and melodic continuity, vertical modal, and linear modal harmony, polychordal techniques, and non-functional harmonic concepts.

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Denotes courses taught only in alternate years.
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‡ Denotes that departmental approval/permission must be obtained by a student prior to registration.
† Denotes courses not available as Education electives.
❖ Denotes courses with limited enrolment.

Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.

Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
❖ Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
MUJZ 341 Jazz Composition 2.
(3) (Prerequisites: MUJZ 260, MUJZ 261, MUJZ 340. (Restriction: Open only to Jazz Performance Majors. Not open to students who have taken MUJZ 340D1/D2.) A continuation of development of a personal and creative jazz compositional style.

MUJZ 356 Jazz Pedagogy.
(3) (3 hours) (Prerequisites: MUHL 393 and MUJZ 224.) (Restriction: Open only to Jazz Performance Majors) Techniques for development of school, community-based and post-secondary jazz programs. Topics include: philosophy of jazz instruction, curriculum development, rhythm section, musical materials, techniques to develop improvisation and aural skills, jazz styles, idiomatic instrumental techniques, score preparation, rehearsal techniques and administration of jazz programs. May include coaching opportunities.

MUJZ 423 Jazz Improvisation/Musicianship 3.
(3) (3 hours) (Prerequisite: MUJZ 224.) (Corequisite: MUJZ 340.) (Restriction: Open only to Jazz Performance Majors) Refinement of improvisational concepts in conjunction with ear training, leading towards the establishment of a personal style of playing. Complex forms and harmonies, and contemporary techniques. Memorization of large and varied repertoire is stressed. The ability to identify, transcribe and perform various melodies, rhythms, and complex harmonies by ear will be stressed.

MUJZ 424 Jazz Improvisation/Musicianship 4.
(3) (3 hours) (Prerequisite: MUJZ 423.) (Restriction: Open only to Jazz Performance Majors) Continuation of Jazz Improvisation/Musicianship MUJZ 423.

MUJZ 440D1 (2), MUJZ 440D2 (2) Advanced Jazz Composition.
(Prerequisite: MUJZ 340D1/D2, or MUJZ 340 and MUJZ 341) (Corequisite: MUJZ 423) (Restriction: Open only to Jazz Performance Majors) Students must register for both MUJZ 440D1 and MUJZ 440D2. No credit will be given for this course unless both MUJZ 440D1 and MUJZ 440D2 are successfully completed in consecutive terms) (MUJZ 440D1 and MUJZ 440D2 together are equivalent to MUJZ 440) A continuation of MUJZ 340. This course will emphasize and facilitate the development of a personal and creative compositional style. Jazz aesthetics will be emphasized and explored in greater depth.

MUJZ 461D1 (2), MUJZ 461D2 (2) Advanced Jazz Arranging.
(2 hours) (Prerequisites: MUJZ 340D1/D2 or both MUJZ 340 and MUJZ 341, and MUJZ 261 OR permission of instructor.) (Corequisite: MUJZ 423.) (Restriction: Open only to Jazz Performance Majors) Students must register for both MUJZ 461D1 and MUJZ 461D2. No credit will be given for this course unless both MUJZ 461D1 and MUJZ 461D2 are successfully completed in consecutive terms) This course introduces advanced concepts in jazz writing by examining scores by historically-important jazz composers/arrangers, as well as contemporary masters. Student writing, including expanded combo, big band, and small group string projects, is geared toward public performance by McGill jazz ensembles and combos.

MUJZ 493 Jazz Performance Practice.
(3) (3 hours) (Prerequisites: MUJZ 187, MUJZ 224.) (Restriction: Open only to Jazz Performance Majors) An in-depth exploration of the performance practice of leading jazz figures, primarily through the study of solo transcriptions. Comparative study of conceptual differences in time feel, ornamentation, tone quality, articulation and harmonic and melodic approach. Detailed study of major rhythm sections and their interaction with soloists.

MUMT-Music Technology
Offered by: Music Research

MUMT 201 Introduction to Music Technologies.
(3) (3 hours) (Prerequisite: none) (Restriction: Not open to students in the following programs: B.Mus. Honours in Music Technology; B.Mus. Minor in Music Technology; B.A. Minor Concentration in Music Technology; B.Sc., Minor in Music Technology) A general introduction to the history and techniques of music technology to include: synthesis, MIDI, sequencing, sampling, digital audio, music and audio for the Internet, sound recording, interactive music systems, and notation systems.

MUMT 202 Fundamentals of New Media.
(3) (3 hours) (Prerequisites: none) (Restriction: Open to all students though priority will be given to students in the Music Technology MAT Minor, followed by Schulich School of Music students.) A theoretical and practical introduction to selected areas of music technology. Topics include digital audio and sampling theory, MIDI and sequencing, audio editing and mixing, elementary sound recording, score editing software and current areas of research interest.

MUMT 203 Introduction to Digital Audio.
(3) (3 hours) (Restriction(s): Open only to students in the Music Technology MST Minor or by permission of the instructor.) An introduction to digital audio and the technologies involved in its practical realization and use in computer music. Topics will include audio signals and systems, sampling & quantization, signal encoding, compression, transmission and storage, filters, analog-to-digital and digital-to-analog converters, digital audio effects, sound sampling and synthesis techniques.

MUMT 250 Music Perception and Cognition.
(3) Basic processes by which the brain transforms sound waves into musical events, dimensions, systems and structures and the processes by which musicians imagine new musical sounds and structures and plan movements that produce music on instruments.

MUMT 301 Music and the Internet.
(3) (3 hours) (Prerequisite: MUMT 201 OR MUMT 202) Technologies and resources of the Internet (access tools, data formats and media) and Web authoring (HTML) for musicians; locating, retrieving and working with information; putting information online; tools for music research, music skills development, technology-enhanced learning, music productivity, and promotion of music and musicians. Evaluation of Internet music resources.

MUMT 302 New Media Production 1.
(3) (3 hours) (Prerequisite: MUMT 202) (Restriction: Open only to students in the Music Technology MAT Minor or by permission of the instructor.) Techniques for producing and manipulating music and sound for new media applications. Synthesis techniques including FM, granular and physical modeling. Audio effects including delay, reverberation, dynamics processing, and filtering. Audio compression, HGI and MIR concepts.

MUMT 303 New Media Production 2.
(3) (3 hours) (Prerequisite: MUMT 302) (Restriction: Open only to students in the Music Technology MAT Minor or by permission of the instructor.) Advanced audio processing with general considerations of aesthetics in sonic art. Introduction to theory and practice of digital video processing using Jitter.

(3) (3 hours) (Prerequisite: Previous digital audio and object-oriented programming experience.) (Restriction(s): Open only to students in the Music Technology MST Minor or by permission of the instructor.) Concepts, algorithms, data structures, and programming techniques for the development of music and audio software, ranging from musical instrument design to interactive music performance systems.

(3) (3 hours) (Prerequisite: MUMT 306) (Restriction(s): Open only to students in the Music Technology MST Minor or by permission of the instructor.) Theory and implementation of signal processing techniques for sound synthesis and audio effects processing using Matlab, C++, and Max/MSP.

MUMT 402 Advanced Multimedia Development.
(3) (3 hours) (Prerequisite: MUMT 307) Design, programming, and deployment of music and audio in multimedia production. Topics include: compression and decompression schemes, music and audio support in C++, JAVA, and applications languages. Development of platform independent software for interactive and networked music and audio.
MUPG-Performance
Offered by: Performance

MUPG 100 Life as Professional Musician.
(1) (1 hour) (Prerequisite: none. May not be taken for elective credit in B.Mus. or Artist Diploma programs) An introduction to the responsibilities and skills required of a professional musician; job options, stage presence, rehearsal etiquette, contracts, professional organizations, freelancing, auditions, special health problems, etc.

MUPG 201 Basic Lyric Diction 1.
(1) (2 hours) (Restrictions: For voice concentration students, and others with permission of instructor. Not available to vocal performance students.) Practical application of the fundamentals of German, Italian and Latin pronunciation in singing, utilizing the International Phonetic Alphabet in song, opera, oratorio and choral texts.

MUPG 202 Basic Lyric Diction 2.
(1) (Restriction(s): for voice concentration students, and others with permission of instructor. Not available to vocal performance students.) Rules of lyric diction and the sounds of the International Phonetic Alphabet (IPA).

MUPG 210 Italian Diction.
(2) (2 hours) (Prerequisite: MUPG 201) Study of International Phonetic Alphabet. Study of Italian pronunciation in singing using song and opera texts.

MUPG 211 French Diction.
(2) (Prerequisite: MUPG 210) Study of French pronunciation in singing using song and opera texts.

MUPG 212 English Diction.
(2) (Prerequisite: MUPG 210) Study of International Phonetic Alphabet. Study of Standard English pronunciation in singing using song and opera texts with a special emphasis on problematic vowels, diphthongs and consonants.

MUPG 213 German Diction.
(2) (Prerequisite: MUPG 212) Study of German pronunciation in singing using song and opera texts.

MUPG 224 Orchestral Excerpts Strings 1.
(2) (2 hours) Excerpts from the standard orchestral literature, highlighting favorite audition materials of the major symphony orchestras, including concentration techniques and the mental attitude involved in taking successful auditions, and the expectations demanded of them in the professional world of orchestras.

MUPG 229 Traditional Drumming 1: Rudiments.
(1) (1 hour) Rudiments based on the French, Swiss, American and British styles.

MUPG 230 Orchestral Excerpts Woodwind 1.
(2) (2 hours) Excerpts from the standard orchestral literature, highlighting favorite audition materials of the major symphony orchestras, including concentration techniques and the mental attitude involved in taking successful auditions, and the expectations demanded of them in the professional world of orchestras.
MUPG 235 Orchestral Excerpts Brass 1.
(2) Excerpts from the standard orchestral literature, highlighting favorite audition materials of the major symphony orchestras, including concentration techniques and the mental attitude involved in taking successful auditions, and the expectations demanded of them in the professional world of orchestras.

MUPG 272D1 (2), MUPG 272D2 (2) Continuo.
(2 hours) (Prerequisites: MUTH 111 AND permission of instructor. Enrolment limited to 6) (Students must register for both MUPG 272D1 and MUPG 272D2.) (No credit will be given for this course unless both MUPG 272D1 and MUPG 272D2 are successfully completed in consecutive terms) An historically-oriented study of the principles of figured-bass. The student will realize at sight elementary bass patterns. Standard idioms from historical treatises will be introduced.

MUPG 296 Acting for Voice.
(1) (1 hour) Acting methods focused on improvisation, open scenes, and script analysis, including Laban theory and character development based on environments, relationships, objectives, obstacles, tactics and stakes.

MUPG 297 Movement for Voice.
(1) (1 hour) Critical awareness of the body in space, interpersonal and intrapersonal knowledge of one's own spine, torso, and extremities and their function in movement as well as stillness. Methods may include Feldenkrais, period dance, Tai Chi and/or Alexander Technique.

MUPG 309 Advanced Diction.
(1) (1 hour) Critical awareness of the body in space, interpersonal and intrapersonal knowledge of one's own spine, torso, and extremities and their function in movement as well as stillness. Methods may include Feldenkrais, period dance, Tai Chi and/or Alexander Technique.

MUPG 315D1 (2), MUPG 315D2 (2) Introduction to Orchestral Conducting.
(2 hours) (Prerequisites: MUTH 211, MUSP 229, MUCO 261, MUGT 215, and permission of instructor) (Students must register for both MUPG 315D1 and MUPG 315D2.) (No credit will be given for this course unless both MUPG 315D1 and MUPG 315D2 are successfully completed in consecutive terms) Emphasis on classical repertoire (Haydn, Mozart, Beethoven). Practical analysis and score preparation, style, and interpretation. Development of clear and expressive technique. Some practical experience.

MUPG 324 Orchestral Excerpts Strings 2.
(2) (2 hours) (Prerequisite: MUPG 224) Additional excerpts from the standard orchestral literature, highlighting favorite audition materials of the major symphony orchestras, including concentration techniques and the mental attitude involved in taking successful auditions, and the expectations demanded of them in the professional world of orchestras.

MUPG 325 Improvisation for String Players.
(2) Improvisation from its use in the early baroque to present day repertoire.

MUPG 326 Introduction to String Pedagogy.
(2) (Prerequisite: MUINT 382) The pedagogy of string playing through performing techniques and instructional materials including: etudes, scale systems and graded repertoire for technical and musical advancement on the specific instrument.

MUPG 329 Traditional Drumming 2: Hand Drumming.
(1) (1 hour) Critical awareness of the body in space, interpersonal and intrapersonal knowledge of one's own spine, torso, and extremities and their function in movement as well as stillness. Methods may include Feldenkrais, period dance, Tai Chi and/or Alexander Technique.

MUPG 330 Orchestral Excerpts Woodwind 2.
(2) (Prerequisite: MUPG 230) Additional excerpts from the standard orchestral literature, highlighting favorite audition materials of the major symphony orchestras, including concentration techniques and the mental attitude involved in taking successful auditions, and the expectations demanded of them in the professional world of orchestras.

MUPG 331 Introduction to Woodwind Pedagogy.
(2) (Prerequisite: MUINT 382) The pedagogy of woodwind playing through performing techniques and instructional materials including: etudes and scale systems and graded repertoire for technical and musical advancement on the specific instrument.

MUPG 335 Orchestral Excerpts Brass 2.
(2) (Prerequisite: MUPG 235) Additional excerpts from the standard orchestral literature, highlighting favorite audition materials of the major symphony orchestras, including concentration techniques and the mental attitude involved in taking successful auditions, and the expectations demanded of them in the professional world of orchestras.

MUPG 336 Introduction to Brass Pedagogy.
(2) (Prerequisite: MUIN 382) An introduction to the pedagogy of brass playing through performing techniques and instructional materials including: etudes, scale systems and graded repertoire for technical and musical advancement on the specific instrument.

MUPG 350 Introduction to Piano Pedagogy.
(2) (Prerequisite: MUIN 382) An introduction to pedagogical methods, philosophies and materials, including selected graded repertoire and materials for technical and musical advancement on the instrument.

MUPG 353 Song Repertoire Class.
(2) Art song repertoire from the late eighteenth century to the present, including the reciprocal relationship between poet and composer and it's expression through performance and performance history.

MUPG 356 Piano Repertoire Studies 1.
(2) Selected keyboard and piano repertoire from 1830 to the present. Familiarity with scores and recorded examples will be required.

MUPG 357 Piano Repertoire Studies 2.
(2) Selected piano repertoire from 1830 to the present. Familiarity with scores and recorded examples will be required.

MUPG 370 Keyboard Improvisation 1.
(2) (2 hours) (Prerequisites: audition and Piano Major Performance 1 Examination or audition for students in programs other than Performance. Open to all keyboard instruments except Jazz) Development of harmonic skills necessary for simple improvised accompaniment, using classical folk and popular music examples. Left-hand accompaniment in varied metres. Different forms of arpeggiation and left-hand accompaniment. Modal materials. Pedal-point. Free improvisation within simple formal structures. Recordings and published materials used to support individual development.

MUPG 372D1 (1), MUPG 372D2 (1) Continuo.
(1 hour) (Prerequisites: MUPG 272 AND permission of instructor. Enrolment limited to 4) (Students must register for both MUPG 372D1 and MUPG 372D2.) (No credit will be given for this course unless both MUPG 372D1 and MUPG 372D2 are successfully completed in consecutive terms) A study of 17th and 18th Century styles of figured-bass accompaniment as revealed in contemporary sources. The emphasis will be on the realization at the keyboard of representative works using original sources.

MUPG 380 Oratorio Class.
(2) Standard solo oratorio repertoire with an emphasis on performance, performance practice and the interpretation of sacred text within a concert setting.

MUPG 424 Orchestral Excerpts Strings 3.
(2) (Prerequisite: MUPG 324) Advanced excerpts from the standard orchestral literature, highlighting favorite audition materials of the major symphony orchestras, including concentration techniques and the mental attitude involved in taking successful auditions, and the expectations demanded of them in the professional world of orchestras.

MUPG 425 Extended Techniques - Strings.
(2) (Prerequisite: MUIN 382) Extended techniques for strings; including physical production, original etudes and transcriptions toward the development, mastery and performance of each technique.

MUPG 429 Percussion Seminar.
(2) Topics will vary semester to semester.) Topics ranging from orchestral literature to solo repertoire.

MUPG 430 Orchestral Excerpts Woodwind 3.
(2) (Prerequisite: MUPG 330) Advanced excerpts from the standard orchestral literature, highlighting favorite audition materials of the major symphony orchestras, including concentration techniques and the mental attitude involved in taking successful auditions, and the expectations demanded of them in the professional world of orchestras.
MUPG 431 Extended Techniques - Woodwinds.
(2) (Prerequisite: MUNI 382) Extended techniques for woodwinds; including physical production, original etudes and transcriptions toward the development, mastery and performance of each technique.

MUPG 435 Extended Techniques - Brass.
(2) (Prerequisite: MUNI 382) An investigation into the area of extended techniques for brass; physical production, original etudes, and transcriptions toward the development, mastery, and performance of each technique.

MUPG 453 Contemporary Repertoire for Voice.
(2) (Prerequisite: Audition) Techniques on learning and performing music from the beginning of atonality to music of the present day. Exploration of unique notations and extended vocal techniques.

MUPG 473 Special Project in Performance.
(1) For details, contact the Department of Performance.

MUPG 474 Special Project in Performance.
(2) For details, contact the Department of Performance.

MUPG 475 Special Project in Performance.
(3) For details, contact the Department of Performance.

MUPG 541 Senior Piano Seminar 1.
(2) (3 hours) (Prerequisite(s): MUNI 331, and 4 semesters of MUEN 493 or MUEN 593) (Restriction: Only open to Faculty of Music Piano Performance students) In-class performance and analysis of solo and ensemble repertoire, including historical and modern recordings.

MUPG 542 Senior Piano Seminar 2.
(2) (3 hours) (Prerequisite: MUPG 541) (Restriction: Only open to Faculty of Music Piano Performance students.) Issues of piano pedagogy and preparation for competitions.

MUPG 590 Vocal Styles and Conventions.
(3) (3 hours) (Restriction: Not open to students who have taken MUPG 690.) Emphasis on vocal performance practices through practical application: text, language, inflection, pronunciation and interpretation considered with individuality of each student's voice and technical development. After examining historical treatises, students will discuss and present musical selections utilizing modern performance standards yet remaining true to stylistic demands of each period.

MUPP-Performance Practice
Offered by: Music Research

MUPP 381 Topics: Performance Practice before 1800.
(3) (3 hours) (Restriction: Enrollment limited to 20. May not be taken by students who have had MUPP 381, MUPP 382, or MUPP 384, except by permission of instructor) Issues in performance practice of prenineteenth-century music. Topics may include rhythm interpretation, voices and instruments in Medieval and Renaissance polyphony, ornamentation, improvisation, performance venues and context. Sources include original notation and modern editions, treatises, iconography, organology, analysis, criticism, and recordings.

MUPP 385 Topics: Performance Practice after 1800.
(3) (3 hours) (Enrollment limited to 20) Nineteenth- and twentieth-century performance traditions, as found in a variety of sources (documents, editions, and recordings.) Special attention is given to how traditions change, and how this is reflected in repertoires and among composers in different generations.

MUSP-Musicanship
Offered by: Music Research

MUSP 123 Jazz Ear Training 1.
(2) (2 hours) (Corequisites: MUJZ 160, MUJZ 170) (Restriction: Open to Jazz Performance Majors.) Rhythmic, melodic and harmonic materials from the jazz idioms. Sight-singing, dictation and transcription with some classical materials.

MUSP 124 Jazz Ear Training 2.
(2) (2 hours) (Prerequisite: MUSP 123) (Corequisites: MUJZ 161, MUJZ 171) (Restriction: Open to Jazz Performance Majors.) Advanced jazz idioms.

MUSP 129 Musicianship 1.
(2) (2 hours, plus 2 hours Choral Solfège Lab) (Prerequisite: Admission to the B.Mus. or L.Mus. program through audition and placement tests in Musicianship including Keyboard Proficiency and Theory. Open to students from other Faculties with permission of Musicianship Co-ordinator; McGill Conservatory Secondary V or equivalent level in Ear Training. Corequisites: MUTH 110 and MUSP 170) Rhythm (basic duple-triple divisions); Isolated Sonorities (intervals, triads, tonal-modal collections); non-modulating Tonal Melodic Structures; Score Reading with treble-bass-alto clefs; Atonal Structures (cells with intervals to fifth excluding tritone); species-counterpoint-like Multipart Structures; Repertoire Building (MUTH 110).

MUSP 129D1 (1), MUSP 129D2 (1) Musicianship 1.
(Students must register for both MUSP 129D1 and MUSP 129D2 together) Rhythm (basic duple-triple divisions); Isolated Sonorities (intervals, triads, tonal-modal collections); non-modulating Tonal Melodic Structures; Score Reading with treble-bass-alto clefs; Atonal Structures (cells with intervals to fifth excluding tritone); species-counterpoint-like Multipart Structures; Repertoire Building (MUTH 110).

MUSP 131 Musicianship 2.
(2) (2 hours, plus 2 hours Choral Solfège Lab) (Prerequisite: MUSP 129) (Corequisites: MUTH 111 and MUSP 171) (Students must complete three of five Listening Tasks (one of which must be Tonal Melodic Structures) in the final segments of both MUSP 129 and MUSP 131 before proceeding to the next Musicianship course.) Rhythm (quadruple-mixed divisions); Isolated Sonorities (voiced triads, dominant sevenths); chromatically-embellished modulating Tonal Melodic Structures; Score Reading with treble-bass-alto-tenor clefs; Atonal Structures (cells with intervals to seventh); diatonic Harmonic Progressions; Repertoire Building (MUTH 111).

MUSP 140 Musicianship Training 1.
(2) (2 hours) (Prerequisite: Matriculation Music or McGill Conservatory Theory Secondary V or its equivalent.) (Corequisites: MUTH 150, MUSP 170) Rhythm and metre basic subdivisions and conducting patterns; intervals, chords, and scale patterns; non-modulating tonal melodies with treble and bass clefs; harmonic progressions emphasizing two-part outer voice structures.

MUSP 141 Musicianship Training 2.
(2) (2 hours) (Prerequisites: Matriculation Music or McGill Conservatory Theory Secondary V or its equivalent. MUSP 140) (Corequisites: MUTH 151, MUSP 171) Rhythm and metre mixed divisions and syncopations; triadic and seventh chord voicings and disjunct pitch collections; chromatically

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embellished melodies adding alto clef; simple modulating harmonic progressions emphasizing two-part outer voice structures.

MUSP 170 Musicianship (Keyboard) 1.
(1) (1 hour) (Prerequisite: Matriculation Music or McGill Conservatory Theory Secondary V or its equivalent.) (Corequisites: MUTH 150 and MUSP 140.) (Course contents parallel with those of MUTH 150 and MUSP 140.) Harmonic, melodic and rhythmic analysis at the keyboard through the study of rudiments, repertoire, choral/score reading, transcription and harmonization.

MUSP 171 Musicianship (Keyboard) 2.
(1) (1 hour) (Prerequisite: MUSP 170) (Corequisites: MUTH 111 and MUSP 131; or MUTH 151 and MUSP 141) (Restriction: All students admitted to B.Mus. and L.Mus. programs, including those with keyboard or guitar as their principal instrument, are required to take MUSP 171 Keyboard Lab, unless exempt on the basis of a placement test. Students who are exempt from MUTH 111 through placement tests must still take MUSP 171 (unless exempt) since this course forms the foundation of keyboard-based musicianship tasks at upper levels. (All Majors in Jazz Performance substitute MUJZ 171 for MUSP 171. Students in Jazz Performance who have completed MUJZ 170 and MUJZ 171, and who transfer to a Department of Theory program, will be required to complete MUSP 171.) Students who do not achieve a continuation pass in MUSP 171 must reregister for the course in the semester immediately following. Students who do not achieve a continuation pass after repeating the course will not be allowed to proceed with further Musicianship or Theory studies until a continuation pass is achieved. Tests for MUSP 171 are held in August-September, December-January, and April-May [as well as during the Summer Session when course(s) offered], the exact dates determined by the Department of Music Research.) (Course contents parallel with those of MUTH 151 and MUSP 141.) Building chordal fluency. Harmonic vocabulary including sequences, chromaticism and modulation, Choralre and score reading with transposing instruments and alto/tenor clefs.

MUSP 172 Keyboard Lab 2.
(1) (Prerequisites: MUSP 131, MUSP 171 and MUTH 111) (Corequisites: MUSO 229, MUTH 210) (Course contents parallel those of MUTH 210, MUSP 229) Keyboard studies with emphasis on memorization and transposition of diatonic sequences; use of seventh chords in diatonic and chromatic contests; augmented sixth and Neapolitan sixth chords, pivot chords, enharmonic and common-tone modulation; practical command of orchestral score analysis at the keyboard.

MUSP 229 Musicianship 3.
(2) (2 hours) (Prerequisite: MUSP 131) (Corequisite: MUTH 210 and MUSP 172) Rhythm (six-, five- and seven-part subdivisions); Isolated Sonorities (triads, dominant, supertonic, leading-tone sevenths); Tonal Melodic Structures tonizing V, III (also vi, v); Score Reading with treble-bass-alto-tenor clefs; Atonal Structures (basic cell combinations); suite MultinPART Structures; Harmonic Progressions including sequential paradigms; Repertoire Building (MUTH 210).

MUSP 231 Musicianship 4.
(2) (2 hours, plus Keyboard lab) (Prerequisite: MUSP 172 and MUSP 229) (Corequisite: MUTH 211) Rhythm (eight-part subdivisions, smaller note values); Isolated Sonorities (applied, neapolitan, augmented sixth chords); Tonal Melodic Structures tonizing related scale-steps; Score Reading with treble-bass-alto-tenor-soprano clefs; Atonal Structures (basic cell combinations); instrumental-texture MultinPART Structures; applied chords and tonizations in Harmonic Progression; Repertoire Building (MUTH 211).

MUSP 240 Musicianship Training 3.
(2) (Prerequisites: Matriculation Music or McGill Conservatory Theory Secondary V or its equivalent. MUSP 141) (Corequisite: MUTH 250) Rhythm and metre mixed divisions and two-part work; additional chordal voicings and pitch collections; melodies modulating to closely-related keys adding tenor clef; harmonic progression including applied chords; two-part keyboard-style passages.

MUSP 241 Musicianship Training 4.
(2) (Prerequisite: MUSP 240) (Corequisite: MUTH 251) Changing metres; chord voicings and atonal pitch collections; modulating tonal melodies and score reading of transposing instruments; harmonic progression including chromatic chords; two-part passages.

MUSP 324 Musicianship for Strings.
(2) (Pre- or Co-requisite: MUSP 241) Fundamental musicianship issues in the context of performance with an emphasis on intonation accuracy, rhythm, articulation, voice-leading and sound texture for strings.

MUSP 329 Musicianship 5.
(2) (2 hours) (Prerequisite: MUSP 231) (Corequisite: MUTH 310 or MUTH 327) Rhythm (mixed divisions, basic polyrhythms); Isolated Sonorities (dominant ninths, triplets, diminished sevenths, augmented sixths); rhythmicism, mixture, enharmonicism in 19th-century Tonal Melodic Structures; Atonal Structures (extended melodies with basic cells); instrumental-texture MultinPART Structures; Harmonic Progression with early 19th-century uses of chromatic chords; Score Reading (19th-century repertoire).

MUSP 330 Musicianship for Woodwind.
(2) (Prerequisite: MUSP 241) Fundamental musicianship issues in the context of performance with an emphasis on intonation accuracy, rhythm, articulation, voice-leading and sound texture for woodwinds.

MUSP 331 Musicianship 6.
(2) (2 hours) (Prerequisite: MUSP 239) (Corequisite: MUTH 310 or MUTH 427) Rhythm (20th-century practices); Isolated Sonorities (trichordal set-classes); chromatically-complex shorter or longer common-practice Tonal Melodic Structures; Atonal Structures (20th-century repertoire items); two-part 20th-century MultinPART Structures; Harmonic Progression with late 19th-century chromatic and extended-modal/modal paradigms; Score Reading (20th-century repertoire).

MUSP 335 Musicianship for Brass.
(2) (Prerequisite: MUSP 241) Fundamental musicianship issues in the context of performance with an emphasis on intonation accuracy, rhythm, articulation, voice-leading and sound texture for brass.

MUSP 346 Post-Tonal Musicianship.
(2) (Prerequisite: MUSP 241) Extended tonal and post-tonal harmonic and contrapuntal structures, rhythmic practices of the 20th and 21st century, score reading.

MUSP 360 Musicianship for Pianists.
(2) (Prerequisite: MUSP 241) Fundamental musicianship issues in the context of performance with an emphasis on sight-reading, practical score analysis and focused learning methods.

MUSP 353 Musicianship for Voice.
(2) (Prerequisite: MUSP 141) Fundamental musicianship issues in the context of performance with an emphasis on intonation accuracy, rhythm, voice-leading and sound texture.

MUSP 354 Introduction to Improvisation and Ornamentation.
(2) (Prerequisite: MUSP 241) Principles of improvisation and ornamentation for music before 1800, including harmonic progressions and voice-leading and contrapuntal patterns for instrumentalists and singers, along with examples of ornamented vocal and instrumental works from 17th and 18th century sources.

MUSP 355 Musicianship for Percussion.
(2) (Prerequisite: MUSP 241) Fundamental musicianship issues in the context of performance with an emphasis on polyrhythm.

MUSP 381 Singing Renaissance Notation.
(2) (Prerequisite: MUSP 241) Choral sight-singing of mensural notation, with a focus on note history and contrapuntal pattens given the contrapuntal context as perceived aurally, Renaissance solmisation.

MUSP 446 Advanced Musicianship 1.
(2) (Prerequisite: One of MUSP 324, 330, 335, 346, 350, 353, 354, 355, 381) (Topic will vary semester to semester.) Advanced musicianship skills.
MUSP 447 Advanced Musicianship 2.
(2) (Prerequisite: One of MUSP 324, 330, 335, 346, 350, 353, 354, 355, 381) (Topics will vary semester to semester.) Additional advanced musicianship skills.

MUSR-Sound Recording
Offered by: Music Research

▲MUSR 232 Introduction to Electronics.
(3) (2 hours lecture plus 2 hours laboratory.) (Prerequisite or corequisite: MATH 112. Available as Arts/Science elective in B.Mus. programs.) (Restriction: Not open to students who have taken MUMT 232.) Basics of electricity including: Ohm's law, electronic components, DC circuits, block diagram, amplifiers, filters, power supplies, electrical measurements (frequency levels, distortion). Emphasis will be placed on electronics applied to audio.

▲MUSR 300D1 (3), MUSR 300D2 (3) Introduction to Music Recording.
(3 hours lecture plus 4 hours studio time.) (Prerequisite: MUCO 242 or MUCO 341. Prerequisites or corequisites: MUTH 211 and permission of instructor.) (It is recommended that all students taking this course register concurrently for PHYS 224 Physics and Psychophysics of Music if they do not already have a background in this subject.) (Students must register for both MUSR 300D1 and MUSR 300D2.) (No credit will be given for this course unless both MUSR 300D1 and MUSR 300D2 are successfully completed in consecutive terms.) (Restriction: Not open to students who have taken MUMT 300D1/D2.) The theory and practice of music recording including a study of recording environments, equipment and studio techniques. The analysis of music scores and recordings with respect to the requirements and possibilities of the recording studio. Studio work will include recording sessions, recording of live concerts, editing, mixing and music p.a.

▲MUSR 339 Introduction to Electroacoustics.
(3) (2 hours lecture plus 2 hours laboratory.) (Prerequisite: MUSR 232 (previously MUMT 232). Available as Arts/Science elective in B.Mus. programs.) (Restriction: Not open to students who have taken MUMT 339.) Basic principles of operation and design of electroacoustical devices and systems; transducers and signal processing devices; magnetic tape sound recording - reproducing systems; disc recording, motion picture sound recording and reproducing systems; practical demonstration of some of these devices and associated measuring, testing and analyzing equipment and techniques.

MUTH-Music Theory and Analysis
Offered by: Music Research

MUTH 110 Melody and Counterpoint.
(3) (4 hours). (Prerequisite: Matriculation Music or McGill Conservatory Theory Secondary V or its equivalent. Corequisites: MUSP 129 and MUSP 170 or permission of coordinator or instructor.) Introduction to principles of melodic and contrapuntal structure through the traditional species of counterpoint: first through fifth species in two parts; first species in three parts. Analysis and compositional modeling of repertoire in medieval-renaissance and 20th-century idioms. Notation, elementary acoustics, review of rudiments.

MUTH 111 Elementary Harmony and Analysis.
(3) (4 hours) (Prerequisite: MUTH 110) (Corequisites: MUSP 131 and MUSP 171) Diatonic chords, harmonic progression, the concept and practice of tonality, simple modulation, seventh chords and secondary dominants. Small forms from c.1700 to the early 19th Century will be analyzed. Written four-part exercises will be required.

MUTH 150 Theory and Analysis 1.
(3) (Prerequisite: Matriculation Music or McGill Conservatory Theory Secondary V or its equivalent.) (Corequisites: MUSP 140 and MUSP 170) Diatonic chords and harmonic progressions, focus on outer-voice framework, cadences, embellishments, building chordal fluency in common-practice tonality, applied chords.

MUTH 151 Theory and Analysis 2.
(3) (Pre- or Co-requisites: MUTH 150, MUSP 140 and MUSP 170) (Corequisites: MUSP 141 and MUSP 171) Sequences and modulation, chromatic vocabulary, analysis of simple theme types (sentence, period, hybrids) and fugal techniques.

MUTH 202 Modal Counterpoint 1.
(3) (3 hours) (Prerequisites: MUTH 211 or MUCO 240D1/D2 AND MUSR 231 and MUSR 170; or MUSR 140, MUSR 170, MUTH 150) (Restriction: Not open to students who have taken MUTH 301.) Polyphonic techniques of the Renaissance period studied through analysis of works by Palestrina and others and through written exercises in two to three voices.

MUTH 204 Tonal Counterpoint 1.
(3) (3 hours) (Prerequisites: MUSP 141, MUSP 171, MUTH 151; or MUSP 211 or MUCO 240D1/D2 AND MUSR 231 and MUSR 170) (Restriction: Not open to students who have taken MUTH 301) The contrapuntal techniques of Baroque composers studied through detailed technical analysis of their works and through written exercises in strict style.

MUTH 210 Tonal Theory and Analysis 1.
(3) (3 hours) (Prerequisites: MUSP 110 and MUSP 111) (Corequisite: MUSP 229) (Prerequisite or corequisite: MUSP 171) Compositional resources of early and mid-18th Century music. Thorough review of elementary harmonic procedure. Introduction to chromatic alteration and linear chords, and to analysis of imitative and invertible counterpoint. Analysis of common forms of the period c.1700 - 1770, including principal Baroque forms, but not including the Classical sonata.

MUTH 211 Tonal Theory and Analysis 2.
(3) (3 hours) (Prerequisite: MUTH 210) (Corequisite: MUSP 231) Compositional resources of late 18th- and early 19th-century music. Analysis of forms common to the period c.1770 - 1830, including Classical sonata forms in several media. Writing of short pieces for keyboard, piano and voice, and string quartet.

MUTH 250 Theory and Analysis 3.
(3) (3 hours) (Prerequisite: MUTH 251) (Corequisite: MUSP 240) Compositional resources of late 18th and early 19th century music. Analysis of forms common to the period c. 1770 - 1840, including Classical sonata forms in several media.

MUTH 251 Theory and Analysis 4.
(3) (3 hours) (Prerequisite: MUTH 250) (Corequisite: MUSP 241) Expanded harmonic resources of the 19th century (e.g., advanced chromaticism including enharmonic reinterpretation and symmetrical division). Analysis of characteristic small and large forms. Writing and analytical skills with a goal toward perceiving how levels of musical structure interact.

MUTH 302 Modal Counterpoint 2.
(3) (3 hours) (Prerequisite: MUTH 202 or MUTH 301) Continuation of Modal Counterpoint I. Study of more advanced techniques through further analysis and written exercises in three or more voices.

MUTH 304 Tonal Counterpoint 2.
(3) (3 hours) (Prerequisite: MUTH 204 or MUTH 303) Further analysis and written exercises with special emphasis on fugal techniques in free style.

Advertisements

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.

Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.

Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
MUTH 310 Mid and Late 19th-Century Theory and Analysis.
(3) (hours) (Prerequisites: MUTH 211 or MUCO 240 and MUSP 231 and MUSP 171) Expanded harmonic resources of the late 19th century (e.g., foreign modulation, chromatic harmony). Analysis of characteristic small and large forms. Development of writing and analytical skills with a goal toward perceiving how levels of musical structure interact.

MUTH 311 20th-Century Theory and Analysis.
(3) (hours) (Prerequisite: MUTH 310) Exploration of 20th-century systems of pitch organization and attitudes toward counterpoint (e.g., polytonality, modal systems, neo-classical tonality, serialism, linear counterpoint) and their relationship to earlier practices. Development of written and analytical skills for the purpose of gaining insight into 20th-century principles and techniques.

MUTH 312 19th-Century Theory and Analysis/Jazz Majors.
(3) (hours) (Prerequisites: MUTH 211 or MUJZ 261 AND MUJZ 161.) (Restriction: Open only to Jazz Performance Majors) Expanded harmonic resources of the late 19th-Century (e.g., foreign modulation, chromatic harmony). Analysis of characteristic small and large forms. Development of writing and analytical skills with a goal toward perceiving how levels of musical structure interact. This course is oriented towards students with Jazz theoretical background.

MUTH 313 20th-Century Theory and Analysis/Jazz Majors.
(3) (hours) (Prerequisite: MUTH 312.) (Restriction: Open only to Jazz Performance Majors) 20th-Century systems of musical organization (e.g., polytonality, modal systems, neo-classical tonality, serialism, linear counterpoint) and their relationship to earlier practices. Development of written and analytical skills to gain insight into 20th-Century principles and techniques. This course is oriented towards students with Jazz theoretical background. Unless otherwise indicated the following courses are prerequisites to 300-, 400- and 500-level theory courses: MUTH 211 or MUCO 240 and MUSP 231 and MUSP 171.

MUTH 321 Topics in Tonal Analysis.
(3) (hours) (Prerequisite: MUTH 251) (Topics will change from semester to semester.) Topics in advanced analysis of tonal music.

MUTH 322 Topics in Post-Tonal Analysis.
(3) (hours) (Prerequisite: MUTH 350) (Topics will change from semester to semester.) Topics in advanced analysis of post-tonal music.

MUTH 327 19th-Century Analysis.
(4) (hours) (Prerequisites: MUTH 211 or MUCO 240 and MUSP 231 and MUSP 171) The analysis of representative works of the 19th Century, selected from various genres of the period encompassed by late Beethoven, Schubert, and Berlioz to Mahler and Wolf. Some preliminary work in Schenkerian analysis will be undertaken.

MUTH 327D1 (2), MUTH 327D2 (2) 19th-Century Analysis.
(Students must register for both MUTH 327D1 and MUTH 327D2) (No credit will be given for this course unless both MUTH 327D1 and MUTH 327D2 are successfully completed in consecutive terms) (Prerequisites: MUTH 211 or MUCO 240 and MUSP 231 and MUSP 171) The analysis of representative works of the 19th Century, selected from various genres of the period encompassed by late Beethoven, Schubert, and Berlioz to Mahler and Wolf. Some preliminary work in Schenkerian analysis will be undertaken.

MUTH 350 Theory and Analysis 5.
(3) (hours) (Prerequisite: MUTH 251) Exploration of 20th and 21st century organizations of pitch, rhythm, timbre etc. Written and analytical skills for the purpose of gaining insight into the compositional techniques and aesthetics of this repertoire.

MUTH 426 Topics in Early Music Analysis.
(3) (hours) (Prerequisite: MUTH 250; or MUTH 211, MUHL 184) Music from before 1700 is analyzed using recently developed techniques as well as materials gathered from treatises contemporaneous with the music. The implications of analysis for performance are considered.

MUTH 427D1 (2), MUTH 427D2 (2) 20th-Century Analysis.
(2 hours) (Students must register for both MUTH 427D1 and MUTH 427D2) (No credit will be given for this course unless both MUTH 427D1 and MUTH 427D2 are successfully completed in consecutive terms) (Prerequisites: MUTH 211 or MUCO 240 and MUSP 231 and MUSP 171) Analysis of a cross-section of 20th century music from Debussy and Mahler to the present to: 1) provide analytical tools necessary for the understanding of pitch organization, form, rhythm, timbre, etc., in individual works; 2) introduce salient theoretical approaches pertaining to 20th Century music.

MUTH 461 Choral and Keyboard Arranging.
(2) (hours) (Prerequisite: MUTH 311 or MUTH 251) An introduction to arranging techniques, and their application in settings for keyboard and choral resources. Materials include folksongs, carols, popular and originally composed melodies. The emphasis is on creative arrangement as opposed to transcription.

MUTH 462 Instrumental Arranging.
(2) (hours) (Prerequisites: MUTH 461 AND MUJZ 201, MUJZ 202, MUJZ 203 and MUJZ 204 OR permission of instructor) The application of the general techniques studied in MUTH 461 to woodwind, brass and string ensembles, to various of which may be added keyboard, chorus, and percussion. Major assignments are prepared and recorded in workshops, and are subsequently discussed in class.

MUTH 473 Special Studies: 20th-Century Theory and Composition.
(3) (Prerequisites: MUTH 211 or MUCO 240D1/D2 or MUTH 250, and MUSP 231 or MUSP 241, and MUSP 171)

MUTH 474 Special Studies: 20th-Century Theory and Composition.
(3) (Prerequisites: MUTH 211 or MUCO 240D1/D2 or MUTH 250, and MUSP 231 or MUSP 241, and MUSP 171)

MUTH 475 Special Project.
(3) (Prerequisites: MUTH 211 or MUCO 240D1/D2 or MUTH 250, and MUSP 231 or MUSP 241, and MUSP 171) For details contact the Department of Music Research.

MUTH 475D1 (1.5), MUTH 475D2 (1.5) Special Project.
(Prerequisites: MUTH 211 or MUCO 240D1/D2 or MUTH 250, and MUSP 231 or MUSP 241, and MUSP 171) (Students must register for both MUTH 475D1 and MUTH 475D2) (No credit will be given for this course unless both MUTH 475D1 and MUTH 475D2 are successfully completed in consecutive terms) (MUTH 475D1 and MUTH 475D2 together are equivalent to MUTH 475) For details contact the Department of Music Research.

MUTH 476 Special Project.
(6) (Prerequisites: MUTH 211 or MUCO 240D1/D2 or MUTH 250, and MUSP 231 or MUSP 241, and MUSP 171) For details contact the Department of Music Research.

MUTH 502 Theory Review 2.
(3) (hours) (Prerequisites: MUTH 211 or MUCO 240D1/D2 or MUTH 250, and MUSP 231 or MUSP 241, and MUSP 171) (For incoming graduate students who, on the basis of placement tests, are deemed deficient in tonal theory and analysis; may not be taken by students enrolled in B.Mus. programs; may not be taken as elective in M.Mus. and M.A. programs) Analytical approaches to larger forms of 18th- and 19th-century repertoire, particularly sonata and other forms in solo, chamber, and orchestral genres. Various analytical methods are applied to the study of advanced chromatic vocabulary and syntax, and to large-scale tonal and formal design.

MUTH 503 Theory Review 3.
(3) (hours) (For incoming graduate students who, on the basis of placement tests, are deemed deficient in post-tonal theory and analysis; may not be taken by students enrolled in B.Mus. programs; may not be taken as elective in M.Mus. and M.A. programs) (Prerequisites: MUTH 211 or MUCO 240 and MUSP 231 and MUSP 171) Analytical approaches to 20th-century repertoire in extended tonal, atonal, twelve-tone, and later idioms. Analysis of pitch and pitch-class structure, and of rhythmic, timbral, and formal developments in 20th-century compositions.
MUTH 528 Schenkerian Theory and Analysis.
(3) (3 hours) (Prerequisite: MUTH 251 or permission of instructor.) Introduction to the principles and graphing techniques of Schenkerian theory, analysis of tonal works from 1700-1900, and study of prolongational techniques in relation to formal types.

MUTH 529 Proseminar in Music Theory.
(3) (3 hours) (Prerequisite: MUTH 251; or: MUTH 211 or MUOC 240D1/D2 and MUSP 231 and MUSP 171) (Corequisite: MUTH 202 or permission of instructor.) An introduction to the discipline of music theory, including modern music theory and analysis.

MUTH 538 Mathematical Models for Musical Analysis.
(3) (3 hours) (Prerequisites: MUTH 350; OR MUTH 211 or MUOC 240D1/D2 or MUTH 250, and MUSP 231 or MUSP 241, and MUSP 171) Theoretical topics and analytical applications selected from the following: serial theory, atonal set theory, contour theory, similarity metrics, transformational networks, elementary group theory and generalized interval systems, neo-Riemannian theory, atonal voice-leading and geometry, scale theory, models of tuning and temperament and information theory.

MUTH 539 Topics in Advanced Writing Techniques.
(3) (Topics will change from semester to semester.) (Prerequisite: MUTH 350) (Corequisite: One of: MUSP 324, MUSP 330, MUSP 335, MUSP 346, MUSP 350, MUSP 353, or MUSP 355.) Advanced writing skills, including intensive four-part harmonization, advanced harmonic vocabulary and syntax, post-tonal counterpoint.

MUTH 541 Topics in Popular Music Analysis.
(3) (Prerequisites: MUTH 251; OR MUTH 211 or MUOC 240D1/D2 or MUTH 250, and MUSP 231 or MUSP 241, and MUSP 171) Different approaches to the analysis of popular music. Issues of transcription, notation, analytical pertinence, aesthetics, hermeneutics, and semiotics will be explored through transcription exercises, readings, and analysis of selected recordings.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses taught only in alternate years.
† Professional Practice (Stage) in Dietetics involving special prerequisites.
◆ Indicates that departmental approval/permission must be obtained by a student prior to registration.
‡ Denotes courses not available as Education electives.
□ Denotes courses with limited enrolment.
RELG-Religious Studies

Faculty of Religious Studies

RELG 201 Religions of the Ancient Near East.
(3) (Fall) Introduction to the religions of Mesopotamia, Egypt and Syria-Palestine (excluding Isrealite religion) from the fourth to first millennium B.C.E. Themes that will be discussed include: gods and goddesses, divine kingship, deligation of kings, temple cult, death and afterlife, magic, piety, oracles, prayer, lament, myth and epic.

RELG 202 Religion of Ancient Israel.
(3) (Winter) An examination of the religion of Ancient Israel by a study of selected texts (narratives, laws, prophetic sayings, wisdom traditions, and psalms) from the Hebrew Scriptures/Old Testament in translation.

RELG 203 Bible and Western Culture.
(3) (Fall and Winter) To provide students of the humanities with knowledge of the Bible as a tool for interpreting religious references in Western literature, art and music. Biblical stories (e.g. Creation, Exodus), key figures (e.g. David, Job, Mary), and common motifs (e.g. Holy City, Pilgrimage, Bride) are explored, then illustrated by later cultural forms.

RELG 204 Judaism, Christianity and Islam.
(3) (Winter) An introduction to the beliefs, practices, and religious institutions of these three world religions.

RELG 207 The Study of World Religions 1.
(3) (Fall) An introduction to the study of Hinduism, Buddhism, Confucianism, Taoism, Judaism, Christianity, Islam and Primal Religions.

RELG 210 Jesus of Nazareth.
(3) (Fall, Winter and Summer) A critical study of selected ancient and modern accounts of the aims and person of Jesus. Attention will be given also to the question of the historical sources and to the relationship between faith and history.

RELG 252 Hinduism and Buddhism.
(3) (Fall) The interaction of Hinduism and Buddhism in India with special reference to the law of Karma, caste, women, ritual, death, yoga, and liberation. Determination of interpretative principles for understanding the religious psychology of Hindus and Buddhists.

RELG 253 Religions of East Asia.
(3) (Winter) Harmony with nature, society, and cosmos to be explored through the religions of the Far East (Confucianism, Taoism, Buddhism and Shinto).

RELG 254 Introduction to Sikhism.
(3) (Fall) An introduction to the historical and religious context in which the Sikh religion developed, its principal doctrines, practices and institutions and its evolution from its origins to the present, both inside and outside India.

RELG 256 Women in Judaism and Islam.
(3) (Summer) The role of women in Judaism and Islam from the point of view of institutionalized religious traditions and of women's religious subjectivity; how women's spiritual and social roles within their religious traditions are shaped by Revealed Law, Holy Text and the Authority of Interpretation. Comparative sociology of religious approach.

RELG 257D1 (3), RELG 257D2 (3) Introductory Sanskrit.
(Students must register for both RELG 257D1 and RELG 257D2.) (No credit will be given for this course unless both RELG 257D1 and RELG 257D2 are successfully completed in consecutive terms) To develop basic language and reading skills.

RELG 264 Introductory Tibetan 1.
(3) (Fall) An introduction to the language of Classical Tibetan, specifically Tibetan script and basic grammar.

RELG 265 Introductory Tibetan 2.
(3) (Winter) (Prerequisite: RELG 264) A continuation of the introduction to the language of Classical Tibetan, specifically Tibetan script and basic grammar.

RELG 266 Introductory Tamil 1.
(3) An introduction to the basic grammar and syntax of Tamil, a classical and modern language from South India. Students will acquire basic skills in reading, writing and speaking Tamil.

RELG 267 Introductory Tamil 2.
(3) (Prerequisite: RELG 266) Advanced basic grammar and syntax of Tamil, a classical and modern language from South India. Students will acquire basic skills in reading, writing and speaking Tamil.

RELG 270 Religious Ethics and the Environment.
(3) (Fall: Macdonald Campus (Ste-Anne-de-Bellevue). Winter: Downtown Campus.) Environmental potential of various religious traditions and secular perspectives, including animal rights, ecofeminism, and deep ecology.

RELG 271 Sexual Ethics.
(3) (Winter) A study of the social construction of sexual identity and of selected issues regarding sexual behaviour.

(6) (Summer) (Open to students in the Honours and Major programs in Religious Studies. Other Arts and Science students may take the course as an elective outside their faculty, in accordance with Arts and Science regulations.) An introduction to the grammar and syntax of New Testament Greek.

(Students must register for both RELG 280D1 and RELG 280D2.) (No credit will be given for this course unless both RELG 280D1 and RELG 280D2 are successfully completed in consecutive terms) (RELG 280D1 and RELG 280D2 together are equivalent to RELG 280) An introduction to the grammar and syntax of New Testament Greek.

RELG 285 The Gnostic Worldview.
(3) (Summer) On the basis of newly-discovered gnostic writings, forms of gnosticism will be studied in their relationship to Platonists, Jewish and Christian circles in the Graeco-Roman world. Attention to Manicheism, Mandaeism and some medieval and modern representatives of the gnostic worldview.

RELG 300 Second Temple Judaism.
(3) (Fall) A survey of Jewish history and thought from Ezra to the Mishnah; religious developments and groups, e.g., apocalypticism, Hellenistic Judaism, Essenes, Pharisees, Early Christianity and Rabbinic Judaism; and Biblical Interpretation in the Dead Sea Scrolls, Philo, Paul, Mishnah and Midrashim.

RELG 301 Jewish Thought 200 B.C.E - 200 C.E.
(3) (Prerequisite: RELG 300 or the consent of the instructor) The religion and literature of sectarian groupings; Apocalyptic thought; Wisdom; Dead Sea Scrolls; Josephus.

RELG 302 Literature of Ancient Israel 1.
(3) (Fall) An introduction to the literature of Ancient Israel in English translation. Reading and interpreting representative selections.

RELG 303 Literature of Ancient Israel 2.
(3) (Winter) Approaches to historical-critical scholarship and to the historical background of the Old Testament. Part of the course will be an examination of methods of biblical analysis through the use of learning cells.

RELG 306 Rabbinic Judaism.
(3) (Prerequisite: RELG 202 or RELG 204 or permission of instructor) (Restriction: Not open to students who have taken RELG 206) The beliefs, practices and religious institutions of the Jews from ancient times to the present.

RELG 307 Bible, Quran & Interpretations.
(3) (Winter) Jewish, Christian and Muslim scriptures as responses to earlier sacred texts and in the light of post-scriptural interpretations. The debates, polemics, interpretative strategies, and intellectual and spiritual sharing produced by these three religions in accepting, explaining, amplifying, modifying, and selectively rejecting their and other sacred scriptures.
RELG 308 Ancient Bible Translations.
(3) (Prerequisites: One of RELG 202, 302 or JWST 211, 327, 328, 329, 330.) Canonical changes, literary alterations, translation techniques, hermeneutical strategies, variant readings, and textual histories of the books of the Hebrew Bible as evidenced in the ancient versions, primarily the Septuagint. (No knowledge of Greek or Hebrew is required.)

(3) (Fall) An introduction to the interpretation of the New Testament.

(3) (Winter) An introduction to the critical study of the Gospels.

RELG 313 Topics in Biblical Studies 1.
(3) (Winter)

RELG 314 Topics in Biblical Studies 2.
(3) (Summer) Topics of current interest in or between world religions.

RELG 315 Special Topics in Religion 1.
(3) (Winter and Summer) (Prerequisites: RELG 204 or RELG 252 or RELG 253) (Restriction: Not open to students who have taken RELG 496) Topic for Winter 2012: TBA. Topics of current interest in or between world religions.

RELG 316 New Religious Movements.
(3) (Prerequisites: RELG 204 or RELG 252 or RELG 253) A critical analysis of the origins, character and influence of one or more religious movements of the 19th C. and beyond, with special attention to their religious principles and social function.

RELG 317 Special Topics in Religion 2.
(3) (Summer) (Prerequisites: RELG 204 or RELG 252 or RELG 253.) (Restriction: Not open to students who have taken RELG 496.) Topics of current interest in, or between, world religions.

RELG 318 Special Topics in Religion 3.
(3) (Fall and Summer) (Prerequisites: RELG 204 or RELG 252 or RELG 253.) (Restriction: Not open to students who have taken RELG 496.) Topics of current interest in, or between, world religions.

RELG 319 Special Topics in Religion 4.
(3) (Summer) (Prerequisites: RELG 204 or RELG 252 or RELG 253) (Restriction: Not open to students who have taken RELG 496) Topics of current interest in, or between, world religions.

RELG 322 The Church in History 1.
(3) (Fall) A survey of major developments in the history of Christianity from the end of the apostolic age to 1500. Selected readings from primary and secondary sources will be used.

RELG 323 The Church in History 2.
(3) (Winter) Significant events and persons in the history of western Christianity from 1500 - 1948 will be studied. Attention is focused on mainline denominations in Britain and continental Europe.

RELG 324 Armenian Apostolic Tradition.
(3) (Prerequisite: RELG 322) History of the Armenian Orthodox Apostolic Church from its foundation to the present: apostolic beginnings; St. Gregory the Illuminator and the establishment of Christianity in Armenia in the fourth century; development of doctrine, ecumenical discussions; theology, mystical thought, liturgy, sacred art and architecture.

RELG 325 Varieties Religious Experience in Christianity.
(3)
RELG 343 Topics: Philosophy of Religion.
(3)

RELG 344 Mahayana Buddhism.
(3) (Fall) (Prerequisites: RELG 252 or RELG 253.) Investigation of Mahayana schools of thought based on reading of key sutras and commentarial literature.

RELG 345 Religion and the Arts 1.
(3) Topics of current interest in Religion and the Arts.

RELG 346 Myth and Symbol in Hindu and Buddhist Art.
(3)

RELG 347 Topics in Religion and the Arts.
(3)

*RELG 348 Classical Hinduism.
(3) (Prerequisite: RELG 252 or permission of the instructor) The study of classical Hindu values in historical context with reference to the goals and stages of life, traditional Hindu laws, ethics (including biomedical ethics), axiology and moral dilemmas in the Epics, gender differences, notions of orthodoxy, and the expansion of Hinduism.

RELG 350 Bhakti Hinduism.
(3) (Fall) (Prerequisite: RELG 252 or permission of the instructor) Foundation of theism in the Upanisads, Epics, Gita and puranas; image worship and temple religion in the Agamas; Vaishnavism, Saivism, Saktism, and competition with Buddhism and Jainism; the relation of Bhakti and Tantra; interaction of Hinduism, Islam, and Sikhism.

*RELG 352 Japanese Religions.
(3) (Fall) (Prerequisite: RELG 253 or permission of instructor) A study of early Shinto mythology, Shinto-Buddhist syncretism, Neo-Confucianism and its influence upon the resurgence of Shinto during the Tokugawa period, folk religion and the New Religions.

RELG 353 Gandhi: His Life and Thought.
(3) (Fall)

RELG 354 Chinese Religions.
(3) (Fall) This course studies the Confucian classics, philosophical and religious Taoism, and Neo-Confucianism and also examines the syncretism between the Chinese religions and Indian Buddhism.

RELG 355 Religion and the Arts 2.
(3) Topics of current interest in Religion and the Arts.

RELG 356 Gender & Sexuality in Hinduism.
(3) (Prerequisite: RELG 252 or Permission of the instructor) Religious perspectives on the body, gender and sexual activity in Hindu cultures. Topics include: dharma and sexual practice; female sexuality; Bhakti and Tantra; same-sex relations; hijras; esotericism in the literary, visual, and performing arts; colonialism, Hindu nationalism, and the politics of gender.

RELG 357D1 (3), RELG 357D2 (3) Sanskrit 2.
(Prerequisite: RELG 257 or permission of the instructor) (Students must register for both RELG 357D1 and RELG 357D2.) No credit will be given for this course unless both RELG 357D1 and RELG 357D2 are successfully completed in consecutive terms) Advanced grammar and vocabulary with readings in epic and similar texts.

RELG 361 Religious Behaviour.
(3) (Winter) A study of the psychological origins of religion, of some aspects of the religious life (e.g. prayer, conversion, mystical experiences), and of some contemporary religious phenomena (e.g. marginal religious groups, the charismatic movement, gnosticism). The views of Freud and Jung are also considered.

RELG 363 Religion and the Arts in India.
(3) (Winter) Aspects of the arts in India (dance, music, drama, novels, film, sculpture and/or painting) as they relate to Hinduism.

RELG 364 Intermediate Tibetan 1.
(3) (Fall) (Prerequisite: RELG 265 or permission of the instructor.) Advanced Tibetan grammar, and translation of selected Tibetan texts.

RELG 365 Intermediate Tibetan 2.
(3) (Winter) (Prerequisite: RELG 364 or permission of the instructor.) Continuation of advanced Tibetan grammar and translation of selected Tibetan texts.

RELG 369 Tibetan Buddhism.
(3) (Winter) (Prerequisite(s): RELG 252 or RELG 253) (This course is expected to be offered every 3 years) Buddhism has been central to Tibetan culture and identity since the 7th century CE. This course introduces key aspects of the history and practices of Tibetan Buddhism, including: early history, political and sectarian developments, the spread of Tibetan Buddhism outside of Tibet, and the myth of “Shangri-La”.

RELG 370 Religion and Human Rights.
(3) (Winter) Social justice and human rights issues as key aspects of modern religious ethics. Topics include: the relationship of religion to the modern human rights movement; religious perspectives on the universality of human rights; the scope and limits of religious freedom; conflicts between religion and rights.

RELG 371 Ethics of Violence/Non-Violence.
(3) (Summer) Forms of violence and the reaction of religious groups are assessed both for their effectiveness and for their fidelity to their professed beliefs. Different traditions, ranging from the wholesale adoption of violent methods (e.g., the Crusades) to repudiation (e.g., Gandhi; the Peace Churches).

RELG 372 Hindu Goddesses.
(3) The mythology, theology, soteriology, history, ritual, and texts of the goddess-centred (Sakta) branches of Hinduism.

RELG 373 Topics in Christian Ethics.
(3) (Winter)

RELG 374 Topics: Philosophy of Religion.
(3)

RELG 375 Religion and Society.
(3) (Fall) (Restriction: U2 and U3 students) A study of the sociology of religion in the light of the contemporary debates regarding secularization, the relation of religion and politics, and the emergence of new religious movements.

RELG 376 Religious Ethics.
(3) A discussion of ethical theory will provide the background for an analysis of the relationship between religious world views and moral reason. Attention will be given to the way in which the dominant religious traditions view the exemplars of religious virtue, and to how the virtues exemplified are related to and justified by the faith tradition in which they operate.

RELG 377 Religious Controversies.
(3) (Winter) A comparative survey of types and topics of argumentation developed in the literature of controversy. Texts discussed include disputations, missionary sermons and polemical treatises.

RELG 379 Eastern Orthodox Christianity.
(3) (Restriction(s): For U2 students and above and not open to students who have taken RELG 232.) Topics in the history, theology, spiritual practices, liturgical arts, and literatures of the Greek, Slavonic, Syriac, Coptic, Armenian, and related Christian traditions.

RELG 381 Advanced New Testament Greek.
(3) (Fall) (Prerequisite: RELG 280 or equivalent, with a minimum grade of 70%) A review of grammar and syntax with an emphasis on rapid reading of sections chosen from different parts of the New Testament.

RELG 389 Introduction to the Bahai Faith.
(3) A study of the Bahá’í Faith with an emphasis on its sacred practices, philosophical principles, practical ethics, history (including historical precedents), administrative structure, sacred texts, and theology of other regions.
REL 390 Elementary Biblical Hebrew.
(6) An introduction to the grammar and syntax of Biblical Hebrew. Emphasis is placed on both the oral and the written language.

REL 390D1 (3), RELG 390D2 (3) Elementary Biblical Hebrew.
(Students must register for both RELG 390D1 and RELG 390D2.) (No credit will be given for this course unless both RELG 390D1 and RELG 390D2 are successfully completed in consecutive terms) An introduction to the grammar and syntax of Biblical Hebrew. Emphasis is placed on both the oral and the written language.

REL 399 Christian Spirituality.
(3) (Summer) Seminar exploring the phenomena of internal religious experience in their relation to received formulae of Christian thought and practice.

REL 404 Post Exilic Biblical Literature.
(3) (Fall)

※RELG 407 The Writings.
(3) (Fall) (Prerequisites: RELG 202, or RELG 302 and RELG 303, or equivalent) A study of Job with some attention to Proverbs and Ecclesiastes (in English translation).

REL 408 The Prophets.
(3) (Prerequisites: RELG 202, or RELG 302 and RELG 303) A study of significant texts selected from the prophetic tradition in the Old Testament.

(3) (Winter) (Prerequisites: RELG 311 and RELG 312) A seminar in exegesis on the basis of representative passages chosen from different parts of the New Testament in English.

REL 420 Canadian Church History.
(3) (Winter) (Prerequisite: RELG 323) A survey of the major Christian traditions in Canada from the settlement of New France to the present. Lectures and seminars with use, where possible, of primary source materials.

※RELG 423 Reformation Thought.
(3) An examination of issues and persons in Europe and the British Isles that contributed to ecclesiastical and social change during the 16th and early 17th centuries.

REL 434 Principles of Christian Theology 2.
(3) (Fall) (Prerequisite: RELG 333) This course is a continuation of RELG 333.

REL 438 Topics in Jewish Theology.
(3) A topic in Jewish Theology will be studied from a variety of approaches, including historical sociological and phenomenological.

REL 439 Religious Dialogues.
(3) (Prerequisite: RELG 204 or RELG 207) A comparative survey of the literature of Western religious dialogues, addressing the history and diversity of debates concerning religion. Texts to be discussed include dialogues by Plato, Cicero, Augustine, Boethius, Anselm, Cusanus, Leo Hebraeus, Erasmus, Thomas More, Jean Bodin, Leibniz and Hume.

REL 442 Pure Land Buddhism.
(3) (Fall) (Prerequisite: RELG 252 and RELG 253, or RELG 342 or RELG 344, or permission of instructor) The concept of Buddha Countries and Pure Lands in Buddhism, the Western Pure Land of Amida (Jodokyo) and its basic scriptures, the Chinese Buddhist schools, the introduction to Japan and the foundation of the Pure Land school by Honen, the Pure Land School of Shinran and its development, and the other Pure Land related schools.

REL 443 Japanese Esoteric Buddhism.
(3) (Prerequisites: RELG 252 and RELG 253, or RELG 342, or RELG 344) The development of esoteric Buddhism in India and Tibet; its Chinese formation and introduction to Japan; Kukai, Shingonshu and Tendai esotericism; the Tachikawa traditions of sexual esotericism; Mandala, iconography and liturgy.

※RELG 451 Zen: Maxims and Methods.
(3) (Prerequisites: RELG 252, RELG 324 or RELG 344, or permission of instructor) Through the reading of such key Zen writings as The Platform Sutra and selections from Zen Masters Chonul of Korea and Dogen of Japan, an attempt will be made to relate Zen anecdote to meditational practice.

REL 452 East Asian Buddhism.
(3) (Winter) (Prerequisite: RELG 253 or RELG 344) Topic for 2000: Precept and Ritual in East Asian Buddhism and Confucianism.

REL 453 Vajrayana Buddhism.
(3) (Prerequisite: RELG 344.) A study of the history, philosophy and practices of Vajrayana Buddhism.

REL 454 Modern Hindu Thought.
(3) (Winter) (Prerequisite: RELG 252) A study of the developments in religious thought with special reference to such thinkers as Ram Mohan Roy, Dayananda Saraswati, Ramkrishna, Vivekananda, Gandhi, Tilak, Aurobindo, and Radhakrishnan.

※RELG 456 Theories of Religion.
(3) (Fall and Winter) (Restriction: For Religious Studies Majors and Honours students or with permission of the Chair of the Religious Studies B.A. Committee) The history of the academic study of religion from its beginnings in the 19th century until the present. Key texts by figures such as Max Muller, Sigmund Freud, Emile Durkheim, Max Weber, Mircea Eliade, Claude Levi-Strauss and Clifford Geertz will be studied.

REL 457D1 (3), RELG 457D2 (3) Advanced Sanskrit.
(Prerequisite: RELG 357 or permission of instructor) (Students must register for both RELG 457D1 and RELG 457D2.) (No credit will be given for this course unless both RELG 457D1 and RELG 457D2 are successfully completed in consecutive terms) Critical reading of selected Sanskrit texts.

REL 464 Advanced Tibetan 1.
(3) (Fall) (Prerequisite: RELG 365 or permission of instructor.) Continuation of translation of specially selected Tibetan texts.

REL 465 Advanced Tibetan 2.
(3) (Winter) (Prerequisite: RELG 464 or permission of the instructor.) Continuation of translation of specially selected Tibetan texts.

REL 470 Theological Ethics.
(3) (Fall) (Prerequisites: One course in theology or Christian thought and one course in philosophy or ethics.) Examines ancient and modern sources of Christian moral thought against a backdrop of contemporary alternatives.

REL 479 Christianity in Global Perspective.
(3) (Winter) (Prerequisite: A 300 level course in Christianity or permission of the Instructor.) Examines varied expressions of Christianity as a global religion with a particular focus on Asia, Africa and Latin America from the 18th century until the present.

REL 482 Exegesis of Greek New Testament.
(3) (Winter) (Prerequisite: RELG 381 or equivalent, and RELG 311, RELG 312) An intensive seminar in exegesis on the basis of representative passages chosen from different parts of the New Testament.

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† Denotes courses not available as Education electives.
❖ Denotes courses with limited enrolment.
RELG 491 Hebrew Texts.
(3) (Fall) Translation and exegesis of selected texts.
RELG 492 Hebrew Texts.
(3) (Winter) Translation and exegesis of selected texts.
(3) (Fall and Winter) (Prerequisite: permission of the Chair of the B.Th. Committee) Open to students in the final year of B.Th. Honours. Provides opportunity for advanced development of research interests and methods in the student's area of Honours specialization.
RELG 495 B.Th. Honours Seminar 2.
(3) (Fall and Winter) (Prerequisite: RELG 494 and permission of the Chair of the B.Th. Committee) Open to students in the final year of B.Th. Honours. Provides further opportunity for advanced development of research interests and methods in the student’s area of Honours specialization.
RELG 496 Special Studies.
(3) (Fall and Winter)
RELG 497 Research Seminar.
(3) (Fall and Winter) (Students wishing to take this course must have the permission of the Religious Studies Adviser)
RELG 498 Special Studies.
(3) (Fall and Winter) (Prerequisite: permission of the Chair of the B.Th. Committee)
RELG 501 Honours Seminar.
(3)
RELG 502 Greco-Roman Judaism.
(3) (Prerequisite: Permission of instructor.) The religion and literature of wisdom and apocalyptic traditions, the Dead Sea Scrolls, Philo and Josephus, with special attention to the Jewish matrix of Early Christianity.
RELG 520 Biblical Theology.
(3) (Fall and Winter) (Restriction: Limited to S.T.M. students.) Tutorials and guided reading in the field of Biblical Theology.
RELG 530 Church History.
(3) (Fall and Winter) Limited to S.T.M. students. Tutorials and guided reading in the field of church history.
RELG 531 Christian Theology.
(3) (Fall and Winter) Limited to S.T.M. studies. Tutorials and guided reading in the field of Christian Theology.
RELG 532 History of Christian Thought 1.
(3) (Prerequisite: At least six (6) credits at the 300 level in Christianity or the Christian Bible.) (Restriction: Not open to students who have taken RELG 320) The development of Christian theology in the Patristic and Medieval periods. Focus on the controversial development of Christian doctrines and disciplines through intensive exposure to primary texts.
RELG 533 History of Christian Thought 2.
(3) (Fall) (Prerequisite: At least six (6) credits at the 300 level in Christianity or the Christian Bible.) (Restriction: Not open to students who have taken RELG 327) The development of Christian theology in the Reformation, Post Reformation and Modern periods through intensive exposure to primary texts.
RELG 540 Philosophy of Religion.
(3) (Fall and Winter) (Restriction: Limited to S.T.M. students.) Tutorials and guided reading in the field of Philosophy of Religion.
RELG 541 Theological Ethics.
(3) (Fall and Winter) (Restriction: Limited to S.T.M. students.) Tutorials and guided reading in the field of Theological Ethics.
RELG 545 Ramayana: Multiple Lives.
(3) (Winter) (Prerequisite: RELG 252 Hinduism & Buddhism) Focus on the Rama story in South Asia. Exploration of the multiple versions of the narrative from classical Sanskrit textual versions, to rural vernacular retellings, to contemporary TV versions, and examination of the various religious, social, cultural and political significations of the narrative in these contexts.
RELG 546 Indian Philosophy.
(3) (Prerequisites: 6 credits in Indian religions, philosophy of religion, philosophy, or permission of the instructor) Introduction to the orthodox systems of Hindu Philosophy leading up to Vedanta i.e., Nyaya, Vaisesika, Sankhya, Yoga and Mimamsa, which will include discussion of such topics as: grounds for belief and disbelief in God, the nature of revelation, means of knowledge, etc.
RELG 547 Special Topics in Hinduism.
(3) (Fall and Winter) (Prerequisite: 6 credits in Indian religions, philosophy of religion, philosophy, or permission of the instructor) A research-oriented seminar dealing with topics in Hindu studies.
RELG 548 Indian Buddhist Philosophy.
(3) (Prerequisites: RELG 252 or RELG 342 or permission of instructor) The rise of buddhist schools of philosophy, especially the Theravada and Saunintraksa, as an attempt to systematize the canonical teachings and defend Buddhism against its critics.
RELG 549 Japanese Buddhist Philosophy.
(3) (Prerequisites: RELG 344, or RELG 451, or permission of the instructor.) (Note: Taught in alternate years.) Major figures of the Kyoto School of Buddhist philosophy (Nishida, Tanabe, Nishitani), emphasizing their intellectual debts to both modern European philosophy (Heidegger and Heidegger) and Mahayana Buddhism (Zen and Pure Land Buddhism).
RELG 550 Comparative Religion.
(3) Tutorials and guided reading in the field of Comparative Religion.
RELG 551 Special Topics in Buddhism.
(3) (Fall and Winter) (Prerequisite: RELG 344 or Permission of instructor.) A research-oriented seminar dealing with topics in Buddhist studies.
RELG 552 Advaita Vedanta.
(3) (Prerequisites: 6 credits in Indian religions) The relation of Nyaya-Vaisesika and Mimamsa to Kavadalvita with concentration on Sankara's Brahmastraabhya, Pada 1 and 2.
RELG 553 Religions of South India 1.
(3) (Prerequisite: 6 credits in Indian religions) Topics include: definitions of Tamil identity, the relation of akam to bhakthi poetry, the theology of the Alvars and Nayanmars, inter-religious and sectarian competition, the motif of pilgrimage, questions of caste and women.
RELG 554 Religions of South India 2.
(3) (Prerequisite: RELG 553) Analysis of the following: sampradayam; ubhayavedana; comparison of Visistadvaita and Saiva Siddantha with reference to selected themes that illustrate the Tamil contribution; the relationship of theology to the sociology of knowledge in Tamilnad.
RELG 555 Honours Seminar.
(3) (Winter) (Restriction: For Religious Studies Honours students or with permission of the Chair of the Religious Studies B.A. Committee) Current trends in the study of religion, including the approaches of critical theory, feminism, post-modernism, and post-colonialism.
RELG 556 Issues in Buddhist Studies.
(3) (Winter) (Prerequisite: permission of instructor) A graduate seminar taught by the Numata Visiting Professor on critical issues in contemporary Buddhist Studies. Emphasis will be placed on the intensive application of different methods - philological, philosophical or social scientific - to some area of modern Buddhist research.
RELG 557 Asian Ethical Systems.
(3) (Prerequisites: RELG 252, RELG 253, or permission of instructor) An examination of the ethical ideals that have evolved in Asia with reference to Hinduism, Buddhism, Confucianism, and Taoism. Issues to be explored include competing views of the individual's duties to social and political institutions, the individual's right to non-conformity, the relationship between morality and metaphysics, and a comparison of moral principles in theistic and atheistic contexts.
RELG 558 Indian Tantric Traditions.
(3) (Prerequisites: Any two 300-level courses in Hinduism or Buddhism.) Study of esoteric Tantric culture (philosophy, ritual, pilgrimage, art, and iconography) with focus on either Hindu or Buddhist Tantric traditions.

RELG 559 Caste and Dalits: Historical and Political Perspectives.
(3) (Winter) (Prerequisites: RELG 252 and one 300 level course or higher in South Asian Religions) This seminar addresses religion, caste, and the Dalit community (formerly known as "untouchables" in India through a range of historical and ritual contexts. Topics include representation in the Hindu textual tradition, colonialism, conversion, caste-based violence, caste and nationalism, non-Brahmin political assertion, and the contemporary reservation system.

RELG 560 Buddhist Poetry.
(3) (Prerequisite(s): RELG 252 or RELG 253 or RELG 344 or permission of the instructor) (This course is expected to be offered every 3 years) (Readings will be English translations of the original texts) Since the time of Buddha, poetry has been used by Buddhist to express devotion, to compose philosophical treatises, and to communicate insight into the experience of awakening. The seminar's content will vary, treating the history, poetics, esthetics, roles and genres of Buddhist poetry in India, Tibet, China and Japan.

RELG 571 Religion and Medicine.
(3) A study of the resources of major world religions (Judaism, Christianity, Islam, Hinduism, Buddhism, Taoism and Shinto) for thinking about ethical issues related to modern medicine, e.g., health, illness, suffering; new reproductive technologies; genetic engineering; euthanasia; palliative care; animal research; transplants.

RELG 583 Hellenistic Religious Texts.
(3) (Winter) (Prerequisite: RELG 482 or permission of the instructor.) Translation and discussion of Hellenistic Greek texts pertaining to the study of topics in Early Christianity and Greco-Roman religions.

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Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
▲ Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
Faculty of Science

ANAT-Anatomy & Cell Biology

Offered by: Anatomy and Cell Biology

ANAT 182 Astrobiology.
(3) (Winter) (3 hours lecture) (This is a double-prefix course and is identical in content with EPSC 182.) (Restriction: Not open to students who have taken ANAT 205/EPSC 205 or EPSC 182.) Astrobiology is the search for the origin, evolution and destiny of life in the universe. The course will provide insight into the formation and evolution of habitable worlds, the evolution of life and the biogeochemical cycles in the Earth’s oceans and atmosphere, and the potential for biological evolution beyond an organism’s planet of origin.

ANAT 212 Molecular Mechanisms of Cell Function.
(3) (Winter) (Prerequisite: BIOL 200) (Restriction: This course is also listed as BIOC 212. Not open to students who have taken or are taking BIOC 212 or BIOL 201) An introductory course describing the biochemistry and molecular biology of selected key functions of animal cells, including: gene expression; mitochondrial production of metabolic energy; cellular communication with the extra-cellular environment; and regulation of cell division.

ANAT 214 Systemic Human Anatomy.
(3) (Fall) (2 hours lectures, 2 hours practical tutorial) (Prerequisites: BIOL 112 (or CEGEP equivalent), PHGY 209 and PHGY 210) (Recommended: to U2 students in Anatomy and Cell Biology) Introduction to the gross anatomy of the various organ systems of head, neck and trunk regions of the human body. Practical tutorials include studies of prepared specimens, use of the anatomical museum and audio-visual materials. This course is limited in size. Selection of students (other than those requiring the course as part of their program) will be made after the first lecture. (Admission is guaranteed for all students enrolled in programs in the Department of Anatomy and Cell Biology for which ANAT 214 is a required course.)

ANAT 261 Introduction to Dynamic Histology.
(4) (Fall) (3 hours lectures, 2 hours laboratory) (Must be taken in U1 by students in Anatomy and Cell Biology programs) (Prerequisites: BIOL 112 or CEGEP equivalent) (Restriction: Open to students in biological sciences and others by special permission) An introduction to light and electron microscopic anatomy in which cell and tissue dynamics will be explored in the principal tissues and organs of the body.

ANAT 262 Introductory Molecular and Cell Biology.
(3) (Winter) (3 hours lecture) (Corequisites: ANAT 212 or BIOC 212 or BIOL 201) (Restriction: Open to students in biological sciences and others by special permission) The architectural, functional and temporal continuity of organelles and the cytoskeleton of mammalian cells is introduced as well as their functional integration in the phenomena of exocytosis, endocytosis, protein trafficking and cell motility and adhesion.

ANAT 315 Anatomy/Limbs and Back.
(4) (Fall) (2 hours lectures, 4 hours laboratory) (Restriction: Open to students in Physical and Occupational Therapy; and to Honours students in Anatomy and Cell Biology, with permission of instructor.) The regional human gross anatomy of the skeleton, joints, muscles and neurovascular structures of the limbs and back.

ANAT 316 Human Visceral Anatomy.
(2) (Winter) (2 hour lecture, 2 hours laboratory) (Prerequisite: ANAT 315) (Restriction: Open to students in Physical and Occupational Therapy, and to others by special permission) The gross anatomy of the various organ systems of the human body, with emphasis on those aspects of greatest relevance to physical and occupational therapists. Laboratories include studies of prepared specimens, use of the anatomical museum and audiovisual materials.

ANAT 321 Circuitry of the Human Brain.
(3) (Fall) (2 hours lectures, 2 hours laboratory/tutorial) (Prerequisites: ANAT/BIOC 212 or BIOL 201; and one of PHGY 209, NSCI 200 or PSYC 211; or permission of instructor) (Restriction: Open to U3 students only) This course explores the functional organization of the human brain and spinal cord. The course focuses on how neuronal systems are designed to subserve specific motor, sensory, and cognitive operations.

ANAT 322 Neuroendocrinology.
(3) (Winter) (3 hours lecture) (Prerequisite: ANAT 261) A lecture course describing brain-endocrine relationships. Emphasis on modern experimental evidence and conceptual developments within the field.

ANAT 365 Cellular Trafficking.
(3) (Fall) (2 hours lectures, 2 hours conference) (Prerequisites: ANAT 261, ANAT 262, PHGY 209, or by permission of instructor) An intensive study of the processes of protein secretion and cell membrane biogenesis. Emphasis on morphological aspects of the above processes, and on the major techniques which have provided experimental evidence, namely, subcellular fractionation, cytochemistry and quantitative electron microscope radioautography.

ANAT 381 Basis of Embryology.
(3) (Fall) (3 hours lecture) (Prerequisites: ANAT 261, BIOL 202 or permission of instructor) The basic processes of reproduction and embryonic development, such as molecular signaling; cell-cell interaction; differentiation; cell fate determination; genetic and epigenetic control of embryonic development.

ANAT 396 Undergraduate Research Project.
(3) (Restrictions: This course cannot be taken under the S/U option. Departmental permission required. Students cannot be supervised by the same instructor for two 396 Science courses. Open to students in programs offered by the Faculty of Science only.) (Note: Enrolment may be limited. Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects. Some projects may be accessible to students in other disciplines. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures) Independent research project with a final written report.

ANAT 416 Development, Disease and Regeneration.
(3) (Winter) (3 hours lecture) (Prerequisite(s): ANAT 381 or BIOL 303 or special permission of instructor) Importance of developmental biology for disease and regeneration. Topics: advanced developmental biology principles; molecular basis for stem cells and their potential applications; organogenesis and its applications to various diseases.

● ANAT 432 Honours Research Project.
(9) (Prerequisite: BIOL 301) (Restriction: For students in the Honours program.) (Course opened to all Anatomy & Cell Biology students and other BSc students by special permission only) Supervised honours research project in biological sciences.

ANAT 432D1 (4.5), ANAT 432D2 (4.5) Honours Research Project.
(Prerequisites: BIOL 301) (Restriction: For students in the Honours program.) (Course opened to all Anatomy & Cell Biology students and other BSc students by special permission only) (Students must register for both ANAT 432D1 and ANAT 432D2.) (No credit will be given for this course unless both ANAT 432D1 and ANAT 432D2 are successfully completed in consecutive terms) (ANAT 432D1 and ANAT 432D2 together are equivalent to ANAT 432) Supervised honours research project in biological sciences.
ANAT 458 Membranes and Cellular Signaling.
(3) (Winter) (3 hours lectures) (Prerequisites: BIOC 212 or ANAT 212 or BIOL 201, ANAT 262, one of PHGY 201, PHGY 209 or BIOL 202, one of BIOC 312 or ANAT 365; BIOC 311 recommended) (Restriction: This course is also listed as BIOC 458. Not open to students who are taking or who have taken BIOC 458) An integrated treatment of the properties of biological membranes and of intracellular signaling, including the major role that membranes play in transducing and integrating cellular regulatory signals. Biological membrane organization and dynamics; membrane transport; membrane receptors and their associated effectors; mechanisms of regulation of cell growth, morphology, differentiation and death.

ANAT 499 Supervised Library Research.
(1) (Fall) (Winter) (Prerequisite: ANAT 262, BIOL 202, or by permission of the instructor.) Supervised exploration of the current scientific literature as it pertains to the advanced field of anatomy and cell biology.

ANAT 541 Cell and Molecular Biology of Aging.
(3) (Winter) (3 hours lecture) (Prerequisites: ANAT 212 or (BIOC 212 or BIOL 201), ANAT 261, ANAT 262, or permission of instructor.) (Corequisite: BIOL 301.) Complex aging process, including theories and mechanisms of aging, animal model systems used to study aging, age-dependent diseases, for example, Alzheimer’s, osteoporosis, and cancer, and age-related diseases, for example, Werner’s syndrome and dyskeratosis congenita.

ANAT 542 Transmission Electron Microscopy.
(3) (Prerequisite(s): Permission of instructor) (2 hours of lecture per week, 3 hours of laboratories per week with an optional 2 hours of tutorials per week. The maximum number of students is 20. For students in science, engineering and life sciences.) Comprehensive study of transmission electron microscopy (TEM). Theory, principles and practical applications of imaging, analysis and advanced sample preparation relevant to biological and non-biological materials.

ANAT 545 Diseases-Membrane Trafficking.
(3) (Prerequisite: ANAT 365) This course will examine how research into diseases has played a key role in unraveling the intricate molecular mechanisms controlling membrane trafficking in mammalian cells. Membrane trafficking disorders fall into two groups those arising from a) membrane-associated or b) cytoskeletal defect. Topics include a) mechanisms of endosomal maturation, lysosomal storage disorders and rab protein-mediated vesicular trafficking and b) rho GTPase and cytoskeletal binding protein mediated trafficking associated with neurological diseases and cancer.

ANOCAT-Atmospheric & Oceanic Sciences
Offered by: Atmospheric & Oceanic Sciences

ATOC 181 Introduction to Atmospheric Science.
(3) (Fall and Winter) (3 hours lecture) (Restriction: Not open to students who have taken ATOC 210, ATOC 214, ENVB 301 or NRSC 201.) A survey of the Earth’s atmosphere, weather and climate system. Topics include the fundamental processes that determine interactions between the atmosphere, ocean and biosphere; anthropogenic effects such as global warming, the ozone hole and acid rain; a perspective on future climate change.

ATOC 182 Introduction to Oceanic Sciences.
(3) (Fall and Winter) (3 hours lecture) (Restriction: Not open to students who have taken ATOC 220, EPSC 360 or EPSC 560.) Air-sea interaction; oceanic properties; global climate change, carbon cycle; polar oceans, sea ice, polynyas; El Niño; remote sensing of oceans; physical control of biological processes in the sea.

ATOC 183 Climate and Climate Change.
(3) (Winter) (3 hours lecture) (Restriction: Not open to students who have taken ATOC 230.) The atmosphere, ocean and sea ice distribution characteristic of the current climate, as seen through observational data and computer model results. Physics of naturally occurring variability on time scales of months to years, such as El Niño. Global circulation models of the atmosphere, ocean and coupled atmosphere-ocean system, and global warming simulations.

ATOC 184 Science of Storms.
(3) (Winter) (Restriction: Not open to students who have taken ATOC 240, or the combination of ATOC 214 and ATOC 215.) Physical processes associated with severe and hazardous weather affecting the Earth. Topics are taught at a fundamental level, without equations, to provide a complete and up-to-date understanding of such extreme events as blizzards, ice storms, tornadoes, hurricanes, floods and droughts.

ATOC 185 Natural Disasters.
(3) (Fall) (3 hours lecture) (This is a double-prefix course and is identical in content with EPSC 185.) (Restriction: Not open to students who have taken ATOC 250/EPSC 250 or EPSC 185.) This course examines the science behind different types of disasters and our ability or inability to control and predict such events. From this course the student will gain an appreciation of natural disasters beyond the newspaper headlines and will better understand how the effects of disasters can be reduced.

(3) (Fall) (3 hours lecture) (Prerequisite: CEGEP Physics, or the combination of PHYS 131 and PHYS 142, or permission of instructor.) An introduction to physical meteorology designed for students in the physical sciences. Topics include: composition of the atmosphere; heat transfer; the upper atmosphere; atmospheric optics; formation of clouds and precipitation; instability; adiabatic charts.

ATOC 215 Oceans, Weather and Climate.
(3) (Winter) (3 hours lecture) (Prerequisite: ATOC 214) Laws of motion, geostrophic wind, gradient wind. General circulation of the atmosphere and oceans, local circulation features. Air-sea interaction, including hurricanes and sea-ice formation, extra-tropical weather systems and fronts, role of the atmosphere and oceans in climate.

ATOC 219 Introduction to Atmospheric Chemistry.
(3) (Winter) (3 hours lecture) (Prerequisites: CHEM 110 and CHEM 120, and one of MATH 139 or MATH 140 or MATH 150, or a CEGEP DEC in Science, or permission of instructor) (Restriction: Not open to students who have taken CHEM 219, CHEM 419 or ATOC 419) (Offered in odd years. Students should register in CHEM 219 in even years) An introduction to the basic topics in atmospheric chemistry. The fundamentals of the chemical composition of the atmosphere and its chemical reactions. Selected topics such as smog chamber, acid rain, and ozone hole will be examined.

ATOC 309 Weather Radars and Satellites.
(3) (Winter) (3 hours lecture) (Prerequisite: ATOC 215) Basic notions of radiative transfer and applications of satellite and radar data to mesoscale and synoptic-scale systems are discussed. Emphasis will be put on the contribution of remote sensing to atmospheric and oceanic sciences.
ATOC 315 Thermodynamics and Convection.
(3) (Fall) (3 hours lecture) (Prerequisites: ATOC 214 and MATH 222) Buoyancy, stability, and vertical oscillations. Dry and moist adiabatic processes. Resulting dry and precipitating convective circulations from the small scale to the global scale. Mesoscale precipitation systems from the cell to convective complexes. Severe convection, downbursts, mesocyclones.

ATOC 396 Undergraduate Research Project.
(3) (Restrictions: This course cannot be taken under the S/U option. Departmental permission required. Students cannot be supervised by the same instructor for two 396 Science courses. Open to students in programs offered by the Faculty of Science only.) (Note: Enrolment may be limited. Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects. Some projects may be accessible to students in other disciplines. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) Independent research project with a final written report.

● ATOC 400 Indie Study of an Env Problem.
(3) (Restriction: students taking a joint program in Atmospheric and Environmental Science or with permission of Department.) A reading or research project, conducted under the guidance of an instructor, on the meteorological processes related to an environmental problem. A written report will be required. Students should consult the departmental undergraduate student adviser for the names of available supervisors.

ATOC 412 Atmospheric Dynamics.
(3) (Fall) (Prerequisites: MATH 314, MATH 315, and PHYS 230) Equations of motion in rotating coordinates, elementary applications, circulation and vorticity, the planetary boundary layer, synoptic scale motions, Rossby waves and inertial oscillations.

● ATOC 419 Advances in Chemistry of Atmosphere.
(3) (Winter) (3 hours lecture) (Prerequisites: CHEM 243, and CHEM 263 or CHEM 213 and CHEM 273, MATH 222 and MATH 315 (or equivalents) or permission of instructor.) (Restriction: Not open to students who have taken CHEM 419, CHEM 619, and ATOC 619) Offered in odd years. Students should register in CHEM 419 in even years) Selected areas of atmospheric chemistry from field and laboratory to theoretical modelling are examined. The principles of atmospheric reactions (gas, liquid and heterogeneous phases in aerosols and clouds) and issues related to chemical global change will be explored.

ATOC 480 Honours Research Project.
(3) (Restriction: U3 Honours students) The student will carry out a research project under the supervision of a member of the staff. The student will be expected to write a report and present a seminar on the work.

ATOC 512 Atmospheric and Oceanic Dynamics.
(3) (Fall) (3 hours lecture) (Prerequisite (Undergraduate): MATH 314, MATH 315, or permission of instructor) Introduction to the fluid dynamics of large-scale flows of the atmosphere and oceans. Stratification of atmosphere and oceans. Equations of state, thermohaline processes. Kinematics, circulation, and vorticity. Hydrostatic and quasi-geostrophic flows. Brief introduction to wave motions, flow over topography, Ekman boundary layers, turbulence.

ATOC 513 Waves and Stability.

● ATOC 515 Turbulence in Atmosphere and Oceans.
(3) (Winter) (3 hours lecture) (Prerequisite (Undergraduate): MATH 314, MATH 315, a previous course in fluid dynamics (such as ATOC 512), or permission of instructor) Application of statistical and semi-empirical methods to the study of geophysical turbulence. Reynolds’ equations, dimensional analysis, and similarity. The surface and planetary boundary layers. Oceanic mixed layer. Theories of isotropic two- and three-dimensional turbulence: energy and enstrophy inertial ranges. Beta turbulence.

● ATOC 521 Cloud Physics.
(3) (3 hours) (Prerequisites (Undergraduate): ATOC 315, MATH 314, and MATH 315, or permission of instructor.) (Restriction: Not open to students who have taken ATOC 521.) Review of dry and moist atmospheric thermodynamics concepts. Atmospheric aerosols, nucleation of water and ice. Formation and growth of cloud droplets and ice crystals. Initiation of precipitation. Severe storms and hail. Weather modification. Numerical cloud models.

● ATOC 525 Atmospheric Radiation.
(3) (Prerequisites (Undergraduate): ATOC 315, MATH 314, and MATH 315, or permission of instructor.) (Restriction: Not open to students who have taken ATOC 620.) Solar and terrestrial radiation. Interactions of molecules, aerosols, clouds, and precipitation with radiation of various wavelengths. Radiative transfer through the clear and cloudy atmosphere. Radiation budgets. Satellite and ground-based measurements. Climate implications.

● ATOC 530 Paleoeclimatic Dynamics.
(3) (Winter) (3 hours lecture) (Prerequisite (Undergraduate): MATH 315 or permission of instructor) Introduction to the components of the climate system. Review of paleoclimates. Physical processes and models of climate and climate change.

ATOC 531 Dynamics of Current Climates.
(3) (Fall) (Prerequisite (Undergraduate): MATH 314, MATH 315, or permission of instructor) (Corequisite: ATOC 540) The general circulation of the atmosphere and oceans. Atmospheric and oceanic general circulation models. Observations and models of the El Niño and Southern Oscillation phenomena.

ATOC 540 Synoptic Meteorology 1.
(3) (Fall) (2 hours lecture; 2 hours laboratory) (Prerequisite (Undergraduate): MATH 314, MATH 315, or permission of instructor) Analysis of current meteorological data. Description of a geostrophic, hydrostatic atmosphere. Ageostrophic circulations and hydrostatic instabilities. Kinematic and thermodynamic methods of computing vertical motions. Tropical and extratropical condensation rates. Barotropic and equivalent barotropic atmospheres.

ATOC 541 Synoptic Meteorology 2.
(3) (Winter) (2 hours lecture; 2 hours laboratory) (Prerequisite (Undergraduate): ATOC 412 and ATOC 540 or permission of instructor) Analysis of current meteorological data. Quasi-geostrophic theory, including the omega equation, as it relates to extratropical cyclone and anticyclone development. Frontogenesis and frontal circulations in the lower and upper troposphere. Cumulus convection and its relationship to tropical and extratropical circulations. Diagnostic case study work.

ATOC 546 Current Weather Discussion.
(1) (Winter) (2 hours lecture) (Prerequisite (Undergraduate): ATOC 540 or permission of instructor) (Restriction: Graduate students and final-year Honours Atmospheric Science students. Others by special permission.) Half-hour briefing on atmospheric general circulation and current weather around the world using satellite data, radar observations, conventional weather maps, and analyses and forecasts produced by computer techniques.

ATOC 550 Special Topics Meteorology and Oceanography.
(1) (Fall) (1 hour lecture) (Prerequisite (Undergraduate): Permission of instructor) (Restriction: Graduate students and final-year Honours Atmospheric Science students. Others by special permission.) Lectures and seminars on special topics such as hydrology, agricultural meteorology, the limits of predictability, planetary atmospheres, atmospheric and oceanic pollution, coastal currents, and research reviews.
biochemical techniques involving properties of enzymes, completed in consecutive terms. A comprehensive course in modern
and BIOC 300D2.) (No credit will be given for this course
of instructor) (Students must register for both BIOC 300D1
(For students in Biochemistry programs, others with permission
open to students who have taken or are taking BIOL 301.) An introductory
non-terminal course intended to be followed by BIOC 311;
of convection or large-scale flows in the atmosphere or ocean.

BIOC 300D1 (3), BIOC 300D2 (3) Laboratory in Biochemistry.

BIOC 511 Metabolic Biochemistry.
(3) (Fall) (Prerequisites: BIOL 200, BIOL 201 or BIOC 212, CHEM 222) The generation of metabolic energy in
higher organisms with an emphasis on its regulation at the molecular, cellular and organ level. Chemical concepts and
mechanisms of enzymatic catalysis are also emphasized. Included:
selected topics in carbohydrate, lipid and nitrogen metabolism;
complex lipids and biological membranes; hormonal signal
transduction.

BIOC 312 Biochemistry of Macromolecules.
(3) (Winter) (Prerequisites: BIOC 311, BIOL 200, BIOL 201 or BIOC 212) Gene expression from the start of
transcription to the synthesis of proteins, their modifications and
degradation. Topics covered: purine and pyrimidine
metabolism; transcription and its regulation; mRNA
processing; translation; targeting of proteins to specific
cellular sites; protein glycosylation; protein phosphorylation;
protein turn-over; programmed cell death (apoptosis).

BIOC 396 Undergraduate Research Project.
(3) (Fall/Winter) (Prerequisites: MIMM 212 or BIOL 301
or BIOC 300 or an equivalent laboratory course in molecular
and cell-biological methods, at least one term of undergraduate
studies, and a CGPA of at least 3.0; or permission of
instructor. A project proposal form must be completed by the
student and instructor and approved by the course coordinator or
his/her delegate before the start of the term. Instructors will
list project-specific prerequisites with the project
description.) (Restrictions: Departmental permission required.
Student cannot be supervised by same instructor for two 396
Science courses. S/U option not permitted. Open to students in
programs offered by the Faculty of Science only.) (Note that
enrolment may be limited. Students are advised to start the
application process well before the start of the term and to
plan for an alternative course in the case that no suitable
project is available. Individual projects may be suggested each
term which may have project-specific prerequisites. Students may
also approach professors to devise their own projects. Some
projects may be accessible to students in other disciplines. See
http://www.mcgill.ca/science/ours for more information about
available projects and application forms and procedures.)
Independent research project with a final written report.

BIOC 404 Biophysical Chemistry.
(3) (Winter) (Prerequisites: CHEM 204, CHEM 214 or
equivalent) (Restriction: Not open to students who have taken or
are taking CHEM 404.) Hydrodynamic and electrophoretic
methods for separation and characterization of macromolecules.
Optical and magnetic resonance spectroscopy of biopolymers, and
applications to biological systems.

BIOC 450 Protein Structure and Function.
(3) (Fall) (Prerequisites: BIOC 311, BIOC 312 and/or
sufficient organic chemistry.) (Restriction: Intended primarily
for students at the U3 level) Primary, secondary, tertiary
and quaternary structure of enzymes. Active site mapping and
site-specific mutagenesis of enzymes. Enzyme kinetics and
mechanisms of catalysis. Multienzyme complexes.

BIOC 454 Nucleic Acids.
(3) (Fall) (Prerequisites: BIOC 311, BIOC 312 or
permission of instructor) Chemistry of RNA and DNA,
transcription and splicing of RNA and their control;
enzymology of DNA replication. Special topics on
transgenics, genetic diseases and cancer.
BIOC 455 Neurochemistry.
(3) (Winter) (Prerequisites: BIOC 311, BIOC 312 or permission of instructor) Covers biochemical mechanisms underlying central nervous system function. Introduces basic neuroanatomy, CNS cell types and morphology, neuronal excitability, chemically mediated transmission, glial function. Biochemistry of specific neurotransmitters, endocrine effects on brain, brain energy metabolism and cerebral ischemia (stroke). With examples, where relevant, of biochemical processes disturbed in human CNS disease.

BIOC 458 Membranes and Cellular Signaling.
(3) (Winter) (Prerequisites: BIOC 212, ANAT 262; one of PHGY 201, PHGY 209 or BIOC 205; one of BIOC 312 or AN AT 365; and BIOC 311 or permission of instructors) (Restriction: This course is also listed as ANAT 458. Not open to students who have taken or are taking ANAT 458 or BIOC 456) An integrated treatment of the properties of biological membranes and of intracellular signaling, including the major role that membranes play in transducing and integrating cellular regulatory signals. Biological membrane organization and dynamics: membrane transport; membrane receptors and their associated effectors; mechanisms of regulation of cell growth, morphology, differentiation and death.

BIOC 462 Research Laboratory in Biochemistry.
(6) (Fall) (Prerequisite: BIOC 300 and consent of the course coordinator and research director) (Restriction: Not open to students who have taken BIOC 460. Restricted to Honours students in Biochemistry) (Students must obtain consent of a prospective research director and the course coordinator in order to register) A laboratory research project and related written review article all performed under the supervision of the same professor.

BIOC 491 Independent Research.
(6) (Winter) (Restriction: Registration by departmental permission only) (Prerequisite: BIOC 460) Individual work on a project to be performed in a research laboratory.

BIOC 503 Immunobiochemistry.
(3) (Winter) (Prerequisites: BIOC 311, BIOC 312) This course, presented in lecture format, emphasizes the molecular, genetic and structural function events that occur in the humoral immune response. Interleukins and other mediators of inflammation, a field in which rapid changes are occurring, are discussed. The clinical significance of fundamental biochemical findings is described.

BIOC 570 Biochemistry of Lipoproteins.
(3) (Winter) (Prerequisite: BIOC 311 or equivalent) (Restriction: Open to U3 and graduate students) Structure, function and metabolism of lipids and lipoproteins as they relate to lipid storage diseases, obesity, diabetes and heart disease.

BIOL-Biology
Offered by: Biology

BIOL 101 Organismal Biology Laboratory.
(1) (Fall) (3 hours laboratory) (Prerequisite: Permission of the Biology Program Advisor) (Restriction: Not open to students who have taken, or are taking BIOL 111.) (Attendance at first lab is mandatory to confirm registration in the course.) Laboratory component of BIOL 111. May be taken only by transfer students who have completed elsewhere the lecture component but not the laboratory of BIOL 111 and only with permission of the Associate Dean (Student Affairs) of Science.

BIOL 102 Cell and Molecular Biology Methods.
(1) (Winter) (3.5 hours laboratory) (Prerequisite: Permission of the Biology Program Advisor) (Restriction: Not open to students who are taking, or have taken BIOL 112.) (Attendance at first lab is mandatory to confirm registration in the course.) The laboratory component of BIOL 112. May be taken only by transfer students who have completed elsewhere the lecture component but not the laboratory of BIOL 112 and only with permission of the Associate Dean (Student Affairs) of Science.

BIOL 111 Principles: Organismal Biology.
(3) (Fall) (2 hours lecture and 3 hours laboratory) (Restriction: Not open to students who have taken CEGEP objective 00UK or equivalent; or BIOL 115,) (This course serves as an alternative to CEGEP objective code 00UK) (May require departmental approval.) (Open to all students wishing introductory biology.) (Attendance at first lab is mandatory to confirm registration in the course.) (This class will use a Student Response System (clicker) which can be obtained from the Bookstore.) An introduction to the phylogeny, structure, function and adaptation of unicellular organisms, plants and animals in the biosphere.

BIOL 112 Cell and Molecular Biology.
(3) (Winter) (2 hours lecture and 3.5 hours laboratory/seminar) (Restriction: Not open to students who have taken or are taking CEGEP objective 00XU or equivalent; or BIOL 115; or AEBI 122) (Attendance at first lab is mandatory to confirm registration in the course.) The cell: ultrastructure, division, chemical constituents and reactions. Bioenergetics: photosynthesis and respiration. Principles of genetics, the molecular basis of inheritance and biotechnology.

BIOL 115 Essential Biology.
(3) (Fall) (3 hours lecture) (Prerequisites: none.) (Restrictions: Open only to non-Science students; not open to students who have had BIOL 111, BIOL 112, or equivalents,) An introduction to biological science that emphasizes the manner in which scientific understanding is achieved and evolves and the influence of biological science on society. Topics will include cell structure and function, genetics, evolution, organ physiology, ecology and certain special topics that change from year to year.

BIOL 200 Molecular Biology.
(3) (Fall) (3 hours lecture, 1 hour optional tutorial) (Prerequisite: BIOL 112 or equivalent) (Corequisite: CHEM 212 or equivalent) The physical and chemical properties of the cell and its components in relation to their structure and function. Topics include: protein structure, enzymes and enzyme kinetics; nucleic acid replication, transcription and translation; the genetic code, mutation, recombination, and regulation of gene expression.

BIOL 201 Cell Biology and Metabolism.
(3) (Winter) (3 hours lecture, 1 hour optional tutorial) (Prerequisite: BIOL 200.) (Restriction: Not open to students who have taken or are taking ANAT 212 or BIOC 212) This course introduces the student to our modern understanding of cells and how they work. Major topics to be covered include: photosynthesis, energy metabolism and metabolic integration; plasma membrane including secretion, endocytosis and contact mediated interactions between cells; cytoskeleton including cell and organelle movement; the nervous system; hormone signaling; the cell cycle.

BIOL 202 Basic Genetics.
(3) (Winter, Summer) (3 hours lecture, 1 hour optional tutorial) (Prerequisite: BIOL 200.) (Restriction: Not open to students who have taken or are taking CEL1 204.) Introduction to basic principles, and to modern advances, problems and applications in the genetics of higher and lower organisms with examples representative of the biological sciences.

BIOL 205 Biology of Organisms.
(3) (Winter) (3 hours lecture, optional conference hour) (Prerequisites: BIOL 200 and PHYS 101 or 131 or equivalent) (Corequisite: ANAT 212/BIOC 212 or BIOL 201) Unified view of form and function in animals and plants. Focus on how the laws of chemistry and physics illuminate biological processes relating to the acquisition of energy and materials and their use in movement, growth, development, reproduction and responses to environmental stress.

BIOL 206 Methods in Biology of Organisms.
(3) (Fall) (1.5 hours lecture, 3.5 hours laboratory and local field trip in week 2) (Prerequisite: BIOL 111 or equivalent) Introduction to modern methods used in organismal biology, including ecological sampling, experimental methods and statistics, taxonomic and phylogenetic analysis of biodiversity, experimental behavioural ecology, microbiological methods, and...
BIOL 210 Perspectives of Science.
(3) (Fall) (3 hours lecture) This course is an introduction to the thinking, language and practices of scientists. Its objective is to bridge the gap between science and the humanities, and in particular to allow students enrolled in the Minor Concentration in Science for Arts to pursue their interests in specific scientific disciplines.

BIOL 215 Introduction to Ecology and Evolution.
(3) (Fall) (3 hours lecture) (Prerequisite: BIOL 111) (Restriction: Not open to students who have taken ENV 202) An introduction to the fundamental processes of ecology and evolution that bear on the nature and diversity of organisms and the processes that govern their assembly into ecological communities and their roles in ecosystem function.

BIOL 240 Monteregian Flora.
(3) (Prerequisite: BIOL 111 or permission) (Restriction: Not open to students who have taken PLNT 358 Note: Taught at the Gault Nature Reserve. Contact instructor for specific dates, logistics: martin.lechowicz@mcgill.ca.) (This course is offered in the summer.) Field studies of ferns, fern allies, conifers and flowering plants; the use of keys for plant identification.

BIOL 300 Molecular Biology of the Gene.
(3) (Fall) (3 hours lecture) (Prerequisites: BIOL 200 and one of BIOL 201 or ANAT/BIOC 212.) A survey of current knowledge and approaches in the area of regulation of gene expression, post-transcriptional control of gene expression, and signal transduction.

BIOL 301 Cell and Molecular Laboratory.
(4) (Fall or Winter) (1 hour lecture and one 6-hour laboratory) (Prerequisites: PHYS 102 or PHYS 142, BIOL 200, BIOL 201 or ANAT/BIOC 212, and BIOL 202. BIOL 206 recommended.) (Restrictions: Not open to students who have taken or are taking BIOC 300. Requires departmental approval.) (For approval email anne-marie.sdicu@mcgill.ca. Specify your ID number as well as the term and lab day.) An introduction to laboratory techniques with a focus on methods used to investigate fundamental questions in modern cell and molecular biology. Techniques including gene cloning, DNA and protein isolation and manipulation are covered, along with functional analysis of genes and proteins. Basic bioinformatics, and computer-based experimental design and data analysis.

BIOL 303 Developmental Biology.
(3) (Winter) (3 hours lecture and 1 hour optional tutorial) (Prerequisites: BIOL 200, and BIOL 201 or ANAT/BIOC 212.) (Corequisites: BIOL 202. BIOL 300 strongly recommended.) A consideration of the fundamental processes and principles underlying embryogenesis. Experimental analyses at the molecular, cellular, and organismal levels will be presented and discussed to provide an overall appreciation of developmental phenomena.

BIOL 304 Evolution.
(3) (Fall) (3 hours lecture) (Prerequisite: BIOL 205 and BIOL 215 or ENV 202) This course will show how the theory of evolution by natural selection provides the basis for understanding the whole of biology. The first half of the course describes the process of selection, while the second deals with evolution in the long term.

BIOL 305 Animal Diversity.
(3) (Winter) (2 hours lecture and 1 three-hour laboratory) (Prerequisite: BIOL 215 or both ENV 200 and ENV 202) The characteristics of the major groups of animals, their ancestry, history and relationship to one another. The processes of speciation, adaptive radiation and extinction responsible for diversity. Methods for constructing of phylogenies, for comparing phenotypes, and for estimating and analyzing diversity.

BIOL 306 Neural Basis of Behaviour.
(3) (Fall) (3 hours lecture) (Prerequisites: PHYS 102 or PHYS 142 or CEGEP Physics and one of the following: BIOL 201, ANAT 212, BIOC 212 or NSCI 200) (Restriction: Not open to students who have taken PSYC 308.) Neural mechanisms of animal behaviour; neuroethology; cellular neurophysiology, integrative networks within nervous systems; neural control of movement; processing of sensory information.

(3) (Winter) (2 hours lecture and 1 hour conference) (Prerequisites: BIOL 205 and BIOL 215 or permission) The relationship between animal behaviour and the natural environment in which it occurs. This course introduces the subject of ecology at the level of the individual organism. Emphasis on general principles which relate to feeding, predator avoidance, aggression, reproduction and parental care of animals including humans.

BIOL 308 Ecological Dynamics.
(3) (Fall) (3 hours lecture, 1 hour computer lab/tutorial) (Prerequisite: BIOL 215 or both ENV 200 and ENV 202) Principles of population, community, and ecosystem dynamics; population growth and regulation, species interactions, dynamics of competitive interactions and of predator/prey systems; evolutionary dynamics.

BIOL 309 Mathematical Models in Biology.
(3) (Fall) (3 hours lecture) (Prerequisite: one year of calculus. An additional course in calculus is recommended) Application of finite difference and differential equations to problems in cell and developmental biology, ecology and physiology. Qualitative, quantitative and graphical techniques are used to analyze mathematical models and to compare theoretical predictions with experimental data.

BIOL 310 Biodiversity and Ecosystems.
(3) (Winter) (3 hours lecture) (one-day field trip to Mont St-Hilaire) (Prerequisite: BIOL 215; or ENV 200 and ENV 202; MATH 112 or equivalent; or permission of the instructor) Ecological bases of the natural causes and consequences of current global environmental changes, including how biodiversity and ecosystem processes are defined and measured, how they vary in space and time, how they are affected by physical and biological factors, and how they affect each other and human societies.

BIOL 313 Eukaryotic Cell Biology.
(3) (Fall) (3 hours lecture and 1 hour optional tutorial) (Prerequisites: BIOL 200 and BIOL 201 or ANAT/BIOC 212.) (Corequisites: BIOL 202. BIOL 300 strongly recommended.) A consideration of the fundamental processes and principles underlying embryogenesis. Experimental analyses at the molecular, cellular, and organismal levels will be presented and discussed to provide an overall appreciation of developmental phenomena.

BIOL 314 Molecular Biology of Oncogenes.
(3) (Fall) (3 hours lecture) (Prerequisites: BIOL 200; BIOL 201 or ANAT/BIOC 212) The genes that cause cancer are altered versions of genes present in normal cells. The origins of these oncogenes, their genetic structure, regulation, and the biochemical properties of the oncogene-encoded proteins will be analyzed in an attempt to understand the origins of human and animal cancers.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.

Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.

Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
BIOL 316 Eukaryotic Cell Biology II.
(3) (Fall) (Prerequisites: BIOL 201 or ANAT 212/BIOC 212) Protein and lipid biochemistry, membrane structure and transport; intracellular compartmentalization, protein sorting and modification, intracellular membrane trafficking; energy transfer, organization and dynamics of chloroplasts and mitochondria; extracellular matrix, cell walls; cell behaviors in their social context.

** BIOL 319 Introduction to Biophysics.
(3) (Winter) (Prerequisite(s): PHYS 142; BIOL 112; MATH 141 or 151, or their equivalents; and one of the following: BIOL 201, ANAT/BIOC 212 PHYS 222, or PHYS 253; or permission of the instructor.) (Restriction(s): Not open to students who have taken or are taking PHYS 319.) Introduction to biophysics: the investigation of the physical laws which apply to biological molecules and cells. Principles covered include Brownian motion, low Reynolds-number environments, forces relevant to cells and molecules, chemical potentials, and free energies; these principles are applied to enzymes as molecular machines, membranes, DNA, and RNA.

** BIOL 324 Ecological Genetics.
(3) (Fall) (2 hours lecture, 1 hour seminar) (Prerequisite: BIOL 202) This course presents evolutionary genetics within an ecological context. The course covers theoretical topics together with relevant data from natural populations of plants and animals.

BIOL 331 Ecology/Behaviour Field Course.
(3) (Fall) (Prerequisites: BIOL 206 and BIOL 215) (Note: Preregistration in March and April. See Course web page: http://biology.mcgill.ca/undergrad/C331A/index.htm. Meets 12-days just before the fall term, with a project report early in the fall term.) (The field portion of this course is given at the University's Gault Nature Reserve in Mont St. Hilaire over a one-week period in August. The course combines lectures, laboratory exercises, field trips, and individual projects. Apply first to Huntsman, Building, must be completed prior to registration.) Independent reading project.

BIOL 333D1 (1.5), BIOL 334D2 (1.5) Applied Tropical Ecology.
(1.5) (Winter, Summer) (Prerequisites: BIOL 206; and BIOL 215 or both ENVR 200 and ENVR 202; and permission of the instructor.) (Note: Must register for both BIOL 334D1 and BIOL 334D2.) (No credit will be given for this course unless both BIOL 334D1 and BIOL 334D2 are successfully completed in consecutive terms) Relevant to agriculture, forestry, fisheries and conservation of natural resources. Field component taught at the University's Belmaris Research Institute in Barbados, for two weeks in early May. The course is organized in a series of small-group field projects of 2-3 days each. Interested students should check the course website, attend the full information session and fill out an application form.

** BIOL 335 Marine Mammals.
(3) (Prerequisite: BIOL 205) (This course is offered in the summer.) Biology of marine mammals with special emphasis on seals and whales of the Bay of Fundy. Taught at the Huntsman Marine Science Centre, St. Andrews, N.B., for two weeks in August. The course combines lectures, laboratory exercises, field trips, and individual projects. Apply first to Huntsman, Building, must be completed prior to registration.) Independent reading project.

** BIOL 342 Marine Biology.
(3) (Winter) (Prerequisite(s): BIOL 205 and BIOL 215 or both ENVR 200 and ENVR 202) (Restriction: Not open to students who have taken BIOL 442) An introduction to marine benthic communities. Topics include structure and dynamics of hard and soft communities; bioturbation, feeding strategies and trophodynamics; ecology of seagrass, mangrove and coral reef ecosystems; marine pollution.

BIOL 350 Insect Biology and Control.
(3) (Fall) (3 hours lecture) (Prerequisite: BIOL 205 or permission of instructor.) (Restriction: Not open to students who have taken or are taking ENTO 330 or ENTO 350.) (Note: This course is also offered as ENTO 350 in the winter term.) Introduction to insect structure, physiology, biochemistry, development, systematics, evolution, ecology and control. Stress on interrelationships and integrated pest control.

** BIOL 352 Vertebrate Evolution.
(3) (Winter) (2 hours lecture, 3 hours laboratory) (Prerequisites: BIOL 304 or permission) The origin and evolution of the major groups of vertebrates. Emphasis is placed on the evolutionary and embryonic origin of key vertebrate anatomies within the context of living and extinct vertebrate phylogeny.

** BIOL 355 Trees: Ecology & Evolution.
(3) (Fall) (3 hours lecture) (Prerequisites: BIOL 205 and BIOL 215 or permission of instructor.) (Restriction: Not open to students who have taken or are taking BIOL 555.) Functional ecology and evolution of trees: patterns in the diversity of tree form and function, the nature of tree adaptation to environment from the scale of habitat to global biogeography.

BIOL 370 Human Genetics Applied.
(3) (Fall) (3 hours lecture; 1 hour conference optional) (Prerequisites: BIOL 200, BIOL 201 or ANAT/BIOC 212, and BIOL 202.) A contemporary view of genetic research as applied to human health and well-being.

BIOL 373 Biometry.
(3) (Fall) (2 hours lecture and 2 hours laboratory) (Prerequisite: MATH 112 or equivalent) (You may not be able to receive credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) Elementary statistical methods in biology. Introduction to the analysis of biological data with emphasis on the assumptions behind statistical tests and models. Use of statistical techniques typically available on computer packages.

BIOL 377 Independent Reading Project.
(3) (Fall, Winter or Summer) (Prerequisites: BIOL 200 and one of BIOL 201, ANAT/BIOC 212; or BIOL 215; or permission of instructor.) (Restriction: Open to U2 or U3 Biology students only) (Note: Before registration, projects must be arranged individually with a staff member in the Biology Department and a form from Nancy Nelson, Room W3/25, Stewart Building, must be completed prior to registration.) Independent reading project.

BIOL 385 Plant Growth and Development.
(3) (Fall) (3 hours lecture) (Prerequisite: BIOL 205.) (Restriction: Not open to students who have taken BIOL 485.) Physiological, biochemical and molecular processes involved in growth and development of the plant body: formation of new tissues and organs; plant morphology, fruit growth and ripening; programmed cell death and senescence; growth and development in extreme environments.

BIOL 388 Laboratory in Neurobiology.
(3) (Winter) (1 hour lecture; 5 hours laboratory) (Prerequisites: BIOL 306 or NSCI 200 or PHGY 311 or NEUR 310 or permission) Methods of neurobiological research, including extracellular and intracellular recordings, electrical stimulation, and the study of neuro-behavioural problems.

BIOL 395 Quantitative Biology Seminar 1.
(1) (Fall) (Prerequisites: BIOL 200, CHEM 212, COMP 250, MATH 222, PHYS 230) (Restriction: Registration restricted to U2 students in the Quantitative Biology program, joint Computer Science and Biology and joint Math and Biology programs.) Overview of concepts and current research in quantitative biology; theoretical ecology and evolution, computational biology, and physical biology.

BIOL 396 Undergraduate Research Project.
(3) (Fall, Winter or Summer) (Restrictions: This course cannot be taken under the S/U option. Departmental permission required. Students cannot be supervised by the same instructor for two 396 Science courses. Open to students in programs offered by the Faculty of Science only.) (Note: Enrollment may be limited. Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach...
students to devise their own projects. Some projects may be accessible to students in other disciplines. See "http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures. A completed application form should be brought to Nancy Nelson in Room W3/25, Stewart Biology Building.) Independent research project with a final written report.

**BIOL 413 Directed Reading.**
(1) (Fall, Winter or Summer) (Prerequisites: BIOL 200, BIOL 201, BIOL 202, BIOL 205, BIOL 215.) (Note: Special topics paper in conjunction with an upper-level biology course, under the guidance of a staff member of the Biology Department. A form from Nancy Nelson, Room W3/25, Stewart Biology Building, must be completed prior to registration.) Directed reading.

**BIOL 416 Genetics of Mammalian Development.**
(3) (Winter) (3 hours lecture) (Prerequisites: BIOL 202, BIOL 300, BIOL 303; or permission) (Restriction: Not open to students who have taken BIOL 516) This course aims to examine problems, theories, and experimental evidence on several concepts of mammalian developmental processes at molecular to organogenesis levels. Most topics are in the mouse model system, where various techniques for genetic manipulation are available.

**BIOL 418 Freshwater Invertebrate Ecology.**
(3) (Fall) (2 hours lecture and 3 hours lab) (Prerequisites: BIOL 215 or ENVR 200 and ENVR 202) The life history and ecology of freshwater invertebrates in lakes, rivers and wetlands; habitat requirements, functional ecology and food web interactions; the role of invertebrates in the functioning of aquatic ecosystems; threats to freshwater diversity.

**BIOL 427 Herpetology.**
(3) (Fall) (2 hours lecture; 3 hours laboratory) (Prerequisite: BIOL 205 and BIOL 305 or permission of instructor.) (Restriction: Not open to students who have taken BIOL 327.) Principles of biology as exemplified by amphibians and reptiles. Topics include: adaptation, social behaviour, reproductive strategies, physiology, biomechanics, ecology, biogeography and evolution. Laboratories will emphasize structure, systematics and identification of local and world herpetofauna as well as field methods.

**BIOL 428 Biological Diversity in Africa.**
(3) (Winter) (Student must be enrolled in the Africa Field Study Seminar) (Prerequisite: BIOL 305 or equivalent or permission of instructor.) (Corequisite(s): NRSC/BIOL 451 and ANTH/GEOG 451) (Restriction: Not open to students who have taken BIOL 328) Biological diversity as exemplified by a particular taxonomic group chosen by the instructor, using field setting in East Africa to impart training in species identification, field research, and principles embodied in the phylogeny, systematics, biogeography, ecology, physiology and/or behaviour of the organisms concerned.

**BIOL 429 East African Ecology.**
(3) (Winter) (The course is to be taught in Africa as a component of the Africa Field Study Semester. Students must register for the Africa Field Study Semester.) (Prerequisite: BIOL 215 or equivalent.) (Corequisite: NRSC/BIOL 451 and ANTH/GEOG 451) (Restriction(s): Not open to students who have taken BIOL 329.) Field settings (Uganda, Kenya, and/or Tanzania) are used to impart training in ecological principles critical to tropical conservation with an emphasis on research design and field research exercises.

**BIOL 432 Limnology.**
(3) (Fall) (2 hours lecture; 2 weekends at field station equivalent to 3 hours laboratory per week) (Prerequisites: BIOL 206 and BIOL 215 or permission of instructor.) (This course, involving two field weekends, has an additional fee of $225, which includes room and board and transportation. The fee is refundable during the period where a student can drop the course with full refund. The Department of Biology subsidizes a portion of the cost for this activity.) A study of the physical, chemical and biological properties of lakes and other inland waters, with emphasis on their functioning as systems.

**BIOL 434 Theoretical Ecology.**
(3) (Winter) (3 hours lecture) (Prerequisites: BIOL 308 or BIOL 309 or permission of instructor.) Study of theoretical ecology and of mathematical tools available to explore the dynamical behaviour of model populations, communities and ecosystems. Models addressing major ecological theories including population stability, community dynamics and ecosystem functioning, epidemic and disturbance dynamics, spatial models, game theory.

**BIOL 435 Natural Selection.**
(3) (Fall) (3 hours of lecture) (Prerequisite: BIOL 304 or permission of instructor.) Explains how the selection of undirected variation accounts for some of the leading features of the natural world. Its main focus is evolutionary change and adaptation, but it will also include material from ecological, economic, biochemical and computer systems. It emphasizes experimental studies of evolution.

**BIOL 436 Evolution and Society.**
(3) (Fall) (Capped at 25 students) (Course instructors will introduce each topic and lead discussion, while an invited lecturer will focus on a particular aspect of that topic.) (Prerequisite(s): BIOL 304 or permission of the instructor,) Explores the impact that biological evolution and evolutionary thinking have on society. Topics include intelligence, language, race, gender, medicine, genetically modified organisms, politics, and creationism.

**BIOL 441 Biological Oceanography.**
(3) (Winter) (2 hours lecture, 3 hours laboratory/conference) (Prerequisites: BIOL 206; and BIOL 215 or both ENVR 200 and ENVR 202) An introduction to how the ocean functions biologically: biology and ecology of marine plankton; regulation, extent and fate of production in the sea.

**BIOL 451 Research in Ecology and Development in Africa.**
(3) (Winter) (Open only to U2 or later students in the AFSS.) (Corequisite(s): ANTH 451 or GEOG 451) (Restriction(s): Not open to students who have taken or are taking NRSC 451.) Development of observation and independent inquiry skills through: 1) participation in short-term project modules in collaboration with existing researchers; 2) participation in interdisciplinary team research on topics selected to allow comparative analysis of field sites; 3) active and systematic observation, documentation, and integration of field experience in ecology and development issues.

**BIOL 463 Mammalian Evolution.**
(3) (Winter) (2 hours lecture; 3 hours laboratory) (Prerequisite(s): BIOL 305 or WILD 350 or permission of the instructor) (The course will use the extensive collections and exhibits of the Redpath Museum as a resource for weekly laboratories.) The origin, diversity and evolutionary history of mammals, systematic review of fossil and living orders of mammals, aspects of mammalian paleoecology, functional morphology and adaptation.

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Always check at [www.mcgill.ca/study/](http://www.mcgill.ca/study/) for the most up-to-date information on whether a course is offered.

- Denotes courses taught only in alternate years.
- ‡ Professional Practice (Stage) in Dietetics involving special prerequisites.
- ✦ Indicates that departmental approval/permission must be obtained by a student prior to registration.
- † Denotes courses not available as Education electives.
- ❅ Denotes courses with limited enrolment.
- ● Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
- ➩ Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
- ❇ Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
BIOL 465 Conservation Biology.
(3) (Fall) (3 hours lecture) (Prerequisite: BIOL 215 OR both ENVR 200 and ENVR 202) Discussion of relevant theoretical and applied issues in conservation biology. Topics: biodiversity, population viability analysis, community dynamics, biology of rarity, extinction, habitat fragmentation, social issues.

BIOL 466 Independent Research Project 1.
(3) (Fall, Winter or Summer) (Prerequisite: BIOL 206 or BIOL 301 or other suitable laboratory course.) (Restrictions: Open only to Biology students. Not open to students who have taken BIOL 477.) (Projects must be arranged individually with a staff member of the Biology Department and a form from Nancy Nelson, Room W3/25, Stewart Building, must be completed prior to registration.) Independent research project.

BIOL 467 Independent Research Project 2.
(3) (Fall, Winter or Summer) (Prerequisite: BIOL 206 or BIOL 301 or other suitable laboratory course.) (Restrictions: Open only to Biology students. Not open to students who have taken BIOL 478.) (Projects must be arranged individually with a staff member of the Biology Department and a form from Nancy Nelson, Room W3/25, Stewart Building, must be completed prior to registration.) Independent research project.

BIOL 468 Independent Research Project 3.
(6) (Fall, Winter or Summer) (Prerequisite: BIOL 206 or BIOL 301 or other suitable laboratory course) (Restriction: Open only to Biology students. Not open to students who have taken BIOL 471 or BIOL 471D1/D2.) (Projects must be arranged individually with a staff member of the Biology Department and a form from Nancy Nelson, Room W3/25, Stewart Building, must be completed prior to registration.) Independent research project.

BIOL 469D1 (3), BIOL 469D2 (3) Independent Research Project 3.
(5) (Fall and Winter) (Prerequisite: BIOL 206 or BIOL 301 or other suitable laboratory course.) (Restriction: Open only to Biology students. Not open to students who have taken BIOL 467 or BIOL 471D1/D2.) (Projects must be arranged individually with a staff member of the Biology Department and a form from Nancy Nelson, Room W3/25, Stewart Building, must be completed prior to registration.) Independent research project.

BIOL 469D1 (4.5), BIOL 469D2 (4.5) Independent Research Project 4.
(Fall and Winter) (Prerequisites: BIOL 206 or BIOL 301 or other suitable 300-level biology course.) (Restrictions: Restricted to Biology students. Projects must be arranged individually with a professor in the Biology department and a form from Nancy Nelson, Room W3/25, Stewart Building, must be completed prior to registration.) (Students must register for both BIOL 469D1 and BIOL 469D2.) (No credit will be given for this course unless both BIOL 469D1 and BIOL 469D2 are successfully completed in consecutive terms.) Independent research project.

BIOL 479D1 (4.5), BIOL 479D2 (4.5) Honours Research Project 1.
(Fall, Winter) (8-12 hours per week research project and related seminars) (Restriction: Biology Honours students. Projects must be arranged individually with, and accepted by a staff member of the Biology Department) (Students must register for both BIOL 479D1 and BIOL 479D2.) (No credit will be given for this course unless both BIOL 479D1 and BIOL 479D2 are successfully completed in consecutive terms) Introduces students to original research, and to its design, execution and reporting.

BIOL 480D1 (6), BIOL 480D2 (6) Honours Research Project 2.
(Fall and Winter) (10-15 hours per week research project and related seminars) (Restriction and course description: as for BIOL 479) (Students must register for both BIOL 480D1 and BIOL 480D2.) (No credit will be given for this course unless both BIOL 480D1 and BIOL 480D2 are successfully completed in consecutive terms) Introduces students to original research, and to its design, execution and reporting.

BIOL 485 Quantitative Biology Seminar 2.
(1) (Fall) (1 hour seminar) (Prerequisite: BIOL 395) (Restriction: Registration is restricted to U3 students in the Quantitative Biology program, joint COMP-BIOL, BIOL-MATH, PHGY-MATH and PHGY-PHYS programs.) Overview of concepts and current research in quantitative biology; theoretical ecology and evolution, computational biology, and physical biology.

BIOL 499D1 (2), BIOL 499D2 (2) Honours Seminar in Biology.
(Fall, Winter) (Students must register for both BIOL 499D1 and BIOL 499D2.) (No credit will be given for this course unless both BIOL 499D1 and BIOL 499D2 are successfully completed in consecutive terms) Selected series of guest speaker seminars of general interest, round table discussions with speakers, preparation of reports, 'scientific writing' module, and presentation of student's research.

• BIOL 505 Diversity and Systematics Seminar.
(3) (Winter) (3 hours seminar) (Prerequisites: BIOL 215 and BIOL 304 or permission) A course dealing in depth with a particular aspect of biological diversity and/or systematics. Topics may include the systematics of a particular taxon, issues in biodiversity, systematics theory and practice, etc. The class will discuss aspects of the chosen topic and prepare individual seminar reports.

• BIOL 510 Advances in Community Ecology.
(3) (Fall) (3 hours lecture/seminar) (Prerequisites: BIOL 308 or GEOG 350 or permission of instructor) The origin, maintenance and roles of biological diversity within ecological communities.

BIOL 514 Neurobiology Learning and Memory.
(3) (Fall) (Prerequisite: BIOL 306 or PHGY 311 or NEUR 310 or NSCI 200 or NSCI 201 or PHGY 311; or permission of instructor) Concepts and mechanisms in advanced cell biology, based on genetic, cell biological, biophysical, and computational studies. Emphasis is placed on processes that are evolutionarily conserved, with examples from model organisms and invertebrate animals.

• BIOL 515 Advances in Aquatic Ecology.
(3) (Winter) (3 hours seminar) (Prerequisite(s): BIOL 432 or BIOL 441 or permission of the instructor) Aquatic ecology and the major issues challenging the field.

BIOL 516 Advanced Topics in Cell Biology.
(3) (Winter) (3 hours seminar) (Prerequisite: BIOL 313 or permission) Concepts and mechanisms in advanced cell biology, based on genetic, cell biological, biophysical, and computational studies. Emphasis is placed on processes that are evolutionarily conserved, with examples from model organisms and cell-free (in vitro) approaches.

BIOL 520 Gene Activity in Development.
(3) (Winter) (3 hours lecture and discussion) (Prerequisites: BIOL 300 and BIOL 303 or permission) An analysis of the role and regulation of gene expression in several models of eukaryotic development. The emphasis will be on critical evaluation of recent literature concerned with molecular or genetic approaches to the problems of cellular differentiation and determination. Recent research reports will be discussed in conferences and analyzed in written critiques.
BIOL 524 Topics in Molecular Biology. 
(3) (Fall) (Prerequisites: BIOL 300 and BIOL 303 or permission.) Molecular genetics and molecular, cellular and developmental biology, including signal transduction, cell differentiation and function, genetic diseases in eukaryotes.

BIOL 530 Advances in Neuroethology. 
(3) (Winter) (3 hours seminar) (Prerequisite: BIOL 306 or NSCI 200 or NSCI 201 or PHGY 311 or permission of instructor.) Neural mechanisms underlying behaviour in vertebrate and invertebrate organisms.

BIOL 532 Developmental Neurobiology Seminar. 
(3) (Winter) (1 hour lecture, 2 hours seminar) (Prerequisites: BIOL 303 or BIOL 306 or permission of instructor) Discussions of all aspects of nervous system development including pattern formation, cell lineage, pathfinding and targeting by growing axons, and neural regeneration. The basis for these discussions will be recent research papers and other assigned readings.

BIOL 540 Ecology of Species Invasions. 
(3) (Winter) (3 hours lecture) (Prerequisite: BIOL 308 or permission of instructor) (Restriction: Not open to U1 or U2 students) (Restriction: Not open to students who are taking or have taken ENVR 540.) Causes and consequences of biological invasion, as well as risk assessment methods and management strategies for dealing with invasive species.

BIOL 544 Genetic Basis of Life Span. 
(3) (Fall) (1 hour lecture, 2 hours seminar) (Prerequisites: BIOL 202, BIOL 300; BIOL 303 recommended or permission) The course will consider how gene action is determining the duration of life in various organisms focusing on the strengths and limitations of the genetic approach. The course will focus particularly on model organisms such as yeast, Caenorhabditis, Drosophila and mouse, as well as on the characterization of long-lived people.

BIOL 551 Molecular Biology: Cell Cycle. 
(3) (Winter) (3 hours lecture) (Prerequisites: BIOL 200, BIOL 201 or ANAT/BIOC 212, BIOL 300) (Restriction: Not open to students who have taken BIOL 451) Cytological studies, biochemical and genetic information are integrated to explain molecular function and function in the eukaryotic cell. The mitotic cell cycle and its coordination with cell growth and division; maintenance of cellular architecture, protein targeting, self-assembly of macromolecular complexes, organelle biogenesis, and DNA replication and segregation are examined.

BIOL 553 Neotropical Environments. 
(3) (Winter) (24 hours lecture and 36 hours field work over a 4-week period) (Prerequisites: HISP 218, MATH 203, and BIOL 215) (Corequisites: ENVR 451; GEOG 404 and HIST 510 alternating with GEOG 498 and AGRI 550) (Restriction: location in Panama. Students must register for a full semester of studies in Panama) Ecology revisited in view of tropical conditions. Exploring species richness. Sampling and measuring biodiversity. Conservation status of ecosystems, communities and species. Indigenous knowledge.

* BIOL 555D1 (1.5), BIOL 555D2 (1.5) Functional Ecology of Trees.
(Fall and Winter) (Prerequisites: BIOL 304, BIOL 308 or permission.) (Students must register for both BIOL 555D1 and BIOL 555D2.) (No credit will be given for this course unless both BIOL 555D1 and BIOL 555D2 are successfully completed in consecutive terms.) (BIOL 555D1 and BIOL 555D2 together are equivalent to BIOL 555.) Discussion of the interactions among traits that underpin the survival of woody plants in diverse environments: physiology, anatomy, architecture, seasonality and phenology, reproductive ecology, life history trade-offs, and the phylogenetic basis of functional diversification.

* BIOL 558 Topics on the Human Genome.
(3) (Winter) (3 hours lecture) (Prerequisites: BIOL 202, BIOL 300, BIOL 370, or permission.) Cellular and molecular approaches to characterization of the human genome.

* BIOL 569 Developmental Evolution. 
(3) (Winter) (3 hours lecture) (Prerequisites: BIOL 303 and BIOL 304; or permission of instructor.) The influence of developmental mechanisms on evolution. This course draws on recent examples from plants and invertebrate and vertebrate animals. Topics include homology, modularity, dissociation, co-option, evolutionary novelty, evolution of cis-regulation and gene regulatory networks, developmental constraint and evolvability, heterochrony, phenotypic plasticity, and canalization.

BIOL 570 Advanced Seminar in Evolution. 
(3) (Fall or Winter) (3 hours seminar) (Restriction: Open to undergraduates by permission) Detailed analysis of a topic in evolutionary biology, involving substantial original research.

** BIOL 571 Experimental Evolution/Ecology. 
(3) (Winter) (1 hour lecture, 4 hours laboratory) (Prerequisite: BIOL 435 or equivalent) (Restriction: Restricted to U3 and Graduate students.) Basic principles and processes of evolution and ecology will be demonstrated using microbial model systems. Topics include mutation, fitness, selection, adaptive radiation, properties of mixtures and community assembly.

** BIOL 572 Molecular Evolution. 
(3) (Fall) (3 hours lecture/seminar) (Prerequisite: BIOL 300) Evolutionary change in DNA and proteins and their implications for cellular, organismal, and population/species evolution.

** BIOL 573 Vertebrate Palaeontology Field Course. 
(3) (Summer) (Prerequisites: BIOL 304 and BIOL 352 or permission of instructor.) (Notes: Spring field course with completed project and presentation by the end of the Summer. Given in a selected Late Cretaceous Alberta and/or Saskatchewan site. Enrolment limited to 15 students) (This course, given at selected localities in Alberta and/or Saskatchewan in May, has an additional fee of $1000, which includes room and board and museum entrance fees, but not tuition or transportation. The fee is refundable during the period where a student can drop the course with full refund. The Department of Biology subsidizes a portion of the cost for this activity.) (This course is offered in the summer.) Terrestrial vertebrate fossils (i.e. dinosaurs, crocodiles and other reptiles) and palaeocommunity analysis, including practical training with fossil identification, mapping, collecting, and stratigraphic interpretation.

BIOL 575 Human Biochemical Genetics. 
(3) (Winter) (3 hours lecture) (Prerequisites: BIOL 202 and BIOL 300; or permission of the instructor) Topics on the study of human systems that have led to advances in basic biology.

** BIOL 585 Game Theory and Evolutionary Dynamics. 
(3) (Winter) (2 hours lecture; 1 hour laboratory) (Prerequisites: BIOL 308 and BIOL 434 or permission of instructor.) (Note: Course given in alternating years.) Mathematical models of game theory and evolutionary dynamics; classical models and current research.

** BIOL 588 Advances in Molecular/Cellular Neurobiology. 
(3) (Fall) (1.5 hours lecture, 1.5 hours seminar) (Prerequisite: BIOL 300 and BIOL 306 or permission) Discussion of fundamental molecular mechanisms underlying the general features of cellular neurobiology. An advanced course based on lectures and on a critical review of primary research papers.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.
CHEM 110 General Chemistry 1.
(3) (Fall) (Prerequisites/corequisites: College level mathematics and physics or permission of instructor; CHEM 120 is not a prerequisite) (Each lab section is limited enrolment) A study of the fundamental principles of atomic structure, radiation and nuclear chemistry, valence theory, coordination chemistry, and the periodic table.

CHEM 112 General Chemistry Laboratory 1.
(1) (Fall) (Open only to entering students who have the lecture equivalent of CHEM 110) (Each lab section is limited enrolment) Illustrative experiments. Laboratory section of CHEM 110. New students will be issued lab sections in CM 1 on the first day of classes.

CHEM 115 Accelerated General Chemistry: Giants in Science.
(4) (Fall) (Prerequisite: Grade 12 Chemistry) (Corequisites: PHYS 131 and MATH 140 or MATH 150) (Restrictions: Enrolment is restricted to students who have obtained a grade greater than 95% in their high school university preparatory chemistry course (e.g., the Ontario Grade 12 University Preparation Chemistry Course [SCU4U]). Not open to students who are taking or have taken CHEM 110 or CHEM 120.) (Note: CHEM 115 and (CHEM 110 plus CHEM 120) are considered equivalent from a prerequisite point of view. If you are planning on applying to medical school, note that some medical schools require applicants to have two general chemistry courses; at McGill you would have to take an additional physical chemistry course like CHEM 204 or equivalent to meet this requirement.) An advanced combined version of CHEM 110 and CHEM 120 that will emphasize developments in the chemical sciences that changed the way nature was understood, focusing, where possible, on examples that led to Nobel Prizes.

CHEM 120 General Chemistry 2.
(4) (Winter) (Prerequisites/corequisites: College level mathematics and physics, or permission of instructor: CHEM 110 is not a prerequisite) (Each lab section is limited enrolment) A study of the fundamental principles of physical chemistry.

CHEM 122 General Chemistry Laboratory 2.
(1) (Winter) (Open only to entering students who have the lecture equivalent of CHEM 120) Illustrative experiments. Laboratory section of CHEM 120.

CHEM 180 World of Chemistry: Environment.
(3) (Winter) (No prerequisites) Risks, water, air pollution, sick-building syndrome, the chemistry of the car, energy (fossil fuel, nuclear), nano and biotechnology, smells, garbage and human waste, dental chemistry and green chemistry.

CHEM 182 World of Chemistry: Technology.
(3) (Fall) (3 lecture hours/week) (Restriction: Not open to students who have taken CHEM 160.) Aspects of chemical technology including publishing of scientific articles, rocketry, space travel, materials (metals, plastics art), household products, forensic science, money, combustion science, computers and cosmetics.

CHEM 183 World of Chemistry: Drugs.
(3) (Fall) (3 lecture hours/week) (Restriction: Not open to students who have taken CHEM 170.) Drug history and marketing, over the counter drugs (e.g. aspirin, cough and cold remedies, allergy preparations), street and heart drugs, mental illness, hormones, brain chemistry and diabetes.

CHEM 199 FYS: Why Chemistry?
(3) (Fall) (Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) A lecture/seminar course dealing with scientific publishing and ethics, science and the media, the world of plastics and cosmetics as well as talking with several professors about their careers and research, usually involving DNA and nanoscience.

CHEM 203 Survey of Physical Chemistry.
(3) (Fall) (Prerequisites: CHEM 110 and CHEM 120 or equivalent.) (Restrictions: Intended for students in biological science programs requiring only one course in physical chemistry. Not open to students who have taken or are taking CHEM 204 or CHEM 213 or CHEM 223 and CHEM 243.) The fundamentals of thermodynamics and chemical kinetics with applications to biomolecular systems. Thermodynamic and kinetic control of biological processes.

CHEM 204 Physical Chemistry/Biological Sciences 1.
(3) (Fall, Winter) (Prerequisites: CHEM 110 and CHEM 120 or equivalent and one full course in calculus) (Restriction: Not open to students who have taken or are taking CHEM 203 or CHEM 213 or CHEM 223 and CHEM 243.) Similar to CHEM 223/CHM 243. Emphasis on the use of biological examples to illustrate the principles of physical chemistry. The relevance of physical chemistry to biology is stressed.

CHEM 211 Organic Chemistry 1 Lectures.
(3) (Fall, Winter, Summer) (Prerequisite: CHEM 110 or equivalent.) (Corequisite: CHEM 120 or equivalent.) (Restrictions: Not open to students who are taking or have taken CHEM 212 or equivalent. Permission of the Department of Chemistry is required.) (Note: Some CEGEP programs provide equivalency for this course. For more information, please see the Department of Chemistry's Web page (http://www.chemistry.mcgill.ca/advising/outside/equivalent.html).) A survey of reactions of aliphatic and aromatic compounds including modern concepts of bonding, mechanisms, conformational analysis, and stereochemistry.

CHEM 212 Introductory Organic Chemistry 1.
(4) (Fall, Winter, Summer) (Prerequisite: CHEM 110 or equivalent.) (Corequisite: CHEM 120 or equivalent.) (Restriction: Not open to students who are taking or have taken CHEM 211 or equivalent) (Each lab section is limited enrolment) (Note: Some CEGEP programs provide equivalency for this course. For more information, please see the Department of Chemistry's Web page (http://www.chemistry.mcgill.ca/advising/outside/equivalent.html).) A
survey of reactions of aliphatic and aromatic compounds including modern concepts of bonding, mechanisms, conformational analysis, and stereochemistry.

CHEM 214 Physical Chemistry/Biological Sciences 2.
(3) (Winter) (Prerequisites: CHEM 204 or CHEM 223/SCIENCE 243.) Emphasis is placed on the use of biological examples to illustrate the principles of physical chemistry. The relevance of physical chemistry to biology is stressed.

**CHEM 217 General Analytical Chemistry Lab 1.**
(1) (Fall) (Prerequisites: CHEM 110 and CHEM 120 or equivalent) Laboratory portion of an individualized program in analytical chemistry.

**CHEM 219 Introduction to Atmospheric Chemistry.**
(3) (Winter) (Prerequisites: CHEM 110 and CHEM 120, and one of MATH 139 or MATH 140 or MATH 150, or a CEGEP DEC in Science, or permission of instructor.) (Restriction: Not open to students who have taken ATOC 219, CHEM 419, or ATOC 419) (Offered in even years. Students should register in ATOC 219 in odd years) An introduction to the basic topics in atmospheric chemistry. The fundamentals of the chemistry of the atmosphere and its interaction with the earth will be studied. Selected topics such as: a smog chamber, acid rain, and the ozone hole, will be examined.

CHEM 222 Introductory Organic Chemistry 2.
(4) (Fall, Winter) (Prerequisite: CHEM 212 or equivalent.) (Restriction: Not open to students who have taken an equivalent Organic 2 at CEGEP (see McGill University Basic Math and Sciences Equivalence Table at www.mcgill.ca/mathscitable) or who have or are taking CHEM 234.) Modern spectroscopic techniques for structure determination. The chemistry of alcohols, ethers, carbonyl compounds, and amines, with special attention to mechanistic aspects. Special topics.

**CHEM 223 Introductory Physical Chemistry 1.**
(2) (Fall) (Prerequisites: CHEM 110, CHEM 120 or equivalent, PHYS 142, or permission of instructor.) (Corequisite: MATH 222 or equivalent.) (Restriction: Not open to students who have taken CHEM 203 or CHEM 204.) (Note: Chemistry Honours and Majors must take CHEM 223 and CHEM 253 simultaneously.) Kinetics 1: Gas laws, kinetic theory of collisions. Thermodynamics: Zeroth law of thermodynamics. First law of thermodynamics, heat capacity, enthalpy, thermochemistry, bond energies. Second law of thermodynamics: the entropy and free energy functions. Third law of thermodynamics, absolute entropies, free energies, Maxwell relations and chemical and thermodynamic equilibrium states.

**CHEM 224 Organic Chemistry Laboratory 1.**
(1) (Fall, Winter, Summer) (Open only to students who have the lecture equivalent of CHEM 212) Illustrative experiments in organic chemistry. Laboratory section of CHEM 212.

**CHEM 232 Organic Chemistry Principles.**
(4) (Fall) (Restriction: Only open to students in the BN Program) (Restriction: Not open to students in the B.Sc. Program) A consideration of basic principles of the atom including body imaging techniques followed by a general summary of organic chemistry, its application to biological processes and everyday life, including principles of bonding, structure and stereochemistry. Some physical chemistry will be given as it relates to the properties of air and breathing.

**CHEM 233 Topics in Physical Chemistry.**
(3) (Winter) (Restriction: For Engineers only.) Introduction to chemical kinetics, surface and colloid chemistry and electrochemistry. The topics to be discussed will be of particular interest to students in chemical engineering.

**CHEM 234 Topics in Organic Chemistry.**
(3) (Fall, Winter, Summer) (Prerequisite: CHEM 212 or equivalent) (Restriction: For Chemical Engineers only or permission of department.) Modern spectroscopic techniques for structure determination. The chemistry of alcohols, ethers, carbonyl compounds, and amines, with special attention to mechanistic aspects. Special topics.

**CHEM 243 Introductory Physical Chemistry 2.**
(2) (Winter) (Prerequisites: CHEM 223 and CHEM 253.) (Restrictions: Not open to students who have taken or are taking CHEM 203 or CHEM 204. Permission of instructor.) (Note: Chemistry Honours and Majors must take CHEM 243 and CHEM 263 simultaneously.) Heterogeneous equilibrium: phase rule and phase diagrams. Ideal solutions, colligative properties, solubility. Electrochemistry, Debye-Hückel Theory. Kinetics 2: Transition State Theory, complex reactions, free-radical reactions, chain reactions, catalysis, reactions at surfaces, ionic effects of reactions in solution, photochemistry.

**CHEM 244 Organic Chemistry Laboratory 2.**
(1) (Fall, Winter) (Prerequisite: CHEM 234 or equivalent) Laboratory section of CHEM 222.

**CHEM 253 Introductory Physical Chemistry 1 Laboratory.**
(1) (Fall) (Prerequisite: CHEM 110, CHEM 120 or equivalent.) (Corequisite: CHEM 223 or equivalent or permission of instructor.) Illustrative experiments in physical chemistry. Laboratory section of CHEM 223.

**CHEM 263 Introductory Physical Chemistry 2 Laboratory.**
(1) (Winter) (Prerequisites: CHEM 223 and CHEM 253.) (Corequisite: CHEM 243 or equivalent.) (Restriction: Not open to students who have taken or are taking CHEM 203 or CHEM 204. Permission of instructor.) (Note: Chemistry Honours and Majors must take CHEM 243 and CHEM 263 simultaneously.) Illustrative experiments in physical chemistry. Laboratory section of CHEM 243.

**CHEM 281 Inorganic Chemistry 1.**
(3) (Winter) (Prerequisites: CHEM 110 and CHEM 120 or equivalent.) (Restrictions: For Honours and Major Chemistry students) (Restriction: Not open to students who have taken or plan to take CHEM 201) Basic concepts of electronic structure and molecular bonding will be developed and applied to the understanding of common materials. Acid-base chemistry. Survey of the chemistry of the main group elements. Introduction to coordination and organometallic chemistry.

**CHEM 287 Introductory Analytical Chemistry.**
(2) (Fall) (Prerequisites: CHEM 110 and CHEM 120, or CHEM 115, or equivalent.) (Corequisite: Students in CHEM 287 are required to take the laboratory, CHEM 297, either simultaneously with CHEM 287 or in the term following CHEM 287.) (Restrictions: Not open to students who have taken CHEM 257D1/D2 or CHEM 277D1/D2) Qualitative and quantitative analysis. A survey of methods of analysis including theory and practice of semimicro qualitative analysis and representative gravimetric, volumetric and instrumental methods.

**CHEM 297 Introductory Analytical Chemistry Laboratory.**
(1) (Fall, Winter) (Prerequisites: CHEM 110 and CHEM 120, or CHEM 115, or equivalent.) (Pre- or Co-requisite: CHEM 287.) (Restriction: Not open to students who have taken CHEM 257D1/D2 or CHEM 277D1/D2) Introductory experiments in analytical chemistry emphasizing classical and instrumental methods of quantitative analysis.

**CHEM 302 Introductory Organic Chemistry 3.**
(3) (Fall) (Prerequisites: BIOL 112, CHEM 222, or permission of the instructor.) Topics covered may include the following: Aromatic compounds, heterocyclic chemistry, sulfur and phosphorus chemistry, organosulfur and organophosphorus compounds, and biomolecules such as lipids, carbohydrates, amino acids, and nucleic acids.
 acids, polypeptides, DNA and RNA.

- **CHEM 307 Analytical Chemistry of Pollutants.**  
  (3) (Prerequisites: One course in analytical chemistry)  
  Description of current analytical practices in air and water pollution; critical evaluation of the reliability of the methods, with particular emphasis on interfering substances; rudiments of automated instrumentation; toxicological analysis as it relates to pollution.

- **CHEM 319 Chemistry of Energy, Storage and Utilization.**  
  (3) (Prerequisites: CHEM 212; CHEM 223 and CHEM 243 or CHEM 214; CHEM 243, CHEM 230 or equivalent; permission of instructor)  
  Energy consumption and human development; green house gases; primary and secondary sources of energy, fuels vs. electricity; energy transport and storage; fossil fuels; nuclear energy; fusion and fission; bioenergetics, natural and artificial photosynthesis; novel materials; nanocomposites; photochemistry; electrochemistry; photovoltaics and batteries; fuel cells; catalysis and biomass.

- **CHEM 334 Advanced Materials.**  
  (3) (Fall) (Prerequisites: CHEM 110/CHEM 120 and PHYS 101/PHYS 102 or PHYS 142, or CEGEP Physics and Chemistry, or equivalent. Prerequisite or Corequisite: one of CHEM 203, CHEM 204, CHEM 223 and CHEM 243, or CHEM 214 or equivalent; or one of PHYS 230 and PHYS 231 or equivalent; or permission of instructor.)  
  An introduction to quantum chemistry covering the historical development, wave theory, methods of quantum mechanics, and applications of quantum chemistry.

- **CHEM 345 Molecular Properties and Structure 1.**  
  (3) (Fall) (Prerequisites: CHEM 213 or CHEM 223 and CHEM 243, MATH 315, and PHYS 142, or permission of instructor.)  
  A survey of the principles of electronic, vibrational and rotational spectroscopy. Magnetic resonance methods.

- **CHEM 352 Structural Organic Chemistry.**  
  (3) (Winter) (Prerequisite: CHEM 302) Modern spectroscopic methods of structure determination of organic and organometallic compounds.

- **CHEM 355 Molecular Properties and Structure 2.**  
  (3) (Winter) (Prerequisite: CHEM 345, PHYS 242, or permission of instructor)  
  A survey of the principles of electronic, vibrational and rotational spectroscopy. Magnetic resonance methods.

- **CHEM 362 Advanced Organic Chemistry Laboratory.**  
  (2) (Fall, Winter) (Prerequisite or corequisite: CHEM 302. Not open to Honours or Majors in Chemistry)  
  An advanced laboratory with experiments related to the theoretical principles and synthetic methods of modern organic chemistry.

- **CHEM 365 Statistical Thermodynamics.**  
  (2) (Winter) (Prerequisite: CHEM 345) Molecular basis of thermodynamics with applications to ideal gases and simple solids. Topics to be covered will include: calculation of thermodynamic functions, chemical equilibrium constants, Einstein and Debye models of solids, absolute reaction rate theory, Debye-Hückel theory of strong electrolytes.

- **CHEM 367 Instrumental Analysis 1.**  
  (3) (Fall) (Prerequisite: CHEM 257 or CHEM 277 or CHEM 287 and CHEM 237)  
  (Each lab section is limited enrolment) An introduction to modern instrumental analysis emphasizing chromatography, electrochemical methods and computational data analysis. Analytical methods to be examined in detail include gas-liquid and high performance liquid chromatography, LC mass spectrometry, and advanced electro-analysis techniques.

- **CHEM 371 Inorganic Chemistry Laboratory.**  
  (2) (Fall, Winter) (Prerequisite: CHEM 362; prerequisite/corequisite: CHEM 381.) (Restriction: Not open to students who have taken CHEM 392) Modular format incorporating self-paced and self-guided instructions. In consultation with the instructors, a program of experimental modules is chosen covering projects related to theoretical principles, synthetic techniques and those instrumental methods used in modern inorganic and organometallic chemistry.

- **CHEM 371D1 (1), CHEM 371D2 (1) Inorganic Chemistry Laboratory.**  
  (Fall) (Prerequisite: CHEM 362; prerequisite/corequisite: CHEM 381.) (Restriction: Not open to students who have taken CHEM 392)  
  (Students must register for both CHEM 371D1 and CHEM 371D2) (No credit will be given for this course unless both CHEM 371D1 and CHEM 371D2 are successfully completed in consecutive terms) (CHEM 371D1 and CHEM 371D2 together are equivalent to CHEM 371) Modular format incorporating self-paced and self-guided instructions. In consultation with the instructors, a program of experimental modules is chosen covering projects related to theoretical principles, synthetic techniques and those instrumental methods used in modern inorganic and organometallic chemistry.

- **CHEM 377 Instrumental Analysis 2.**  
  (3) (Winter) (Prerequisite: CHEM 367) (Each lab section is limited enrolment) Spectroscopic methods of analysis will be studied with respect to fundamentals, operational aspects and instrument design. Topics will range from UV-visible to x-ray spectrometry. Methodologies will be evaluated with respect to their application in spectrometric systems. Laboratory automation will be studied and applied in the laboratory.

- **CHEM 381 Inorganic Chemistry 2.**  
  (3) (Fall) (Prerequisite: CHEM 281.) (Restriction: For Honours and Major Chemistry students)  
  Introduction to transition metal chemistry, coordination numbers and geometry, and nomenclature will be followed by a discussion of crystal field theory and its applications to problems in spectroscopy, magnetoochemistry, thermodynamics and kinetics. Several aspects related to applications of organometallic compounds in catalysis and bioinorganic systems will be discussed.

- **CHEM 382 Organic Chemistry: Natural Products.**  
  (3) (Winter) (Prerequisite: CHEM 302) Structure, synthesis, stereochemistry and biosynthesis of terpenes, alkaloids, antibiotics and selected molecules of medicinal interest.

- **CHEM 392 Integrated Inorganic/Organic Laboratory.**  
  (3) (Fall, Winter) (Prerequisite/corequisites: CHEM 381 and CHEM 302. Advanced laboratory for Chemistry Honours and Major students. Students enrolled in CHEM 392 are strongly advised to choose the D option.)  
  A program of modules is selected in consultation with the laboratory staff. The experimental modules consist of projects related to the theoretical principles, synthetic techniques and instrumental methods used in modern organic, inorganic and organometallic chemistry, including aspects of green chemistry and nanotechnology.

- **CHEM 392D1 (1.5), CHEM 392D2 (1.5) Integrated Inorganic/Organic Laboratory.**  
  (Fall, Winter) (Prerequisite/corequisites: CHEM 381 and CHEM 302. Advanced laboratory for Chemistry Honours and Major students. Students enrolled in CHEM 392 are strongly advised to choose the D option.) (Restriction: Not open to students who have taken CHEM 362.) (Students must register for both CHEM 392D1 and CHEM 392D2) (No credit will be given for this course unless both CHEM 392D1 and CHEM 392D2 are successfully completed in consecutive terms) (CHEM 392D1 and CHEM 392D2 together are equivalent to CHEM 392) A program of modules is selected in consultation with the laboratory staff. The experimental modules consist of projects related to the theoretical principles, synthetic techniques and instrumental methods used in modern organic, inorganic and organometallic chemistry, including aspects of green chemistry and nanotechnology.

- **CHEM 393 Physical Chemistry Laboratory 2.**  
  (2) (Fall, Winter) (Prerequisite: CHEM 253 and CHEM 263 or CHEM 363 or permission of instructor.) (Each lab section has limited enrolment.) Selected experiments to illustrate physico-chemical principles more advanced than those of CHEM 363, CHEM 253 and CHEM 263.
CHEM 396 Undergraduate Research Project.
(3) (Fall, Winter) (Restrictions: This course cannot be taken under the S/U option. Departmental permission required. Students cannot be supervised by the same instructor for two 396 Science courses. Open to students in programs offered by the Faculty of Science only.) (Note: Enrolment may be limited. Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects. Some projects may be accessible to students in other disciplines. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) Independent research project with a final written report.

CHEM 400 Independent Study in Chemistry.
(1) (Fall, Winter) (Prerequisites: CHEM 213, CHEM 222, CHEM 277D1/D2, CHEM 281, plus at least one course in Chemistry at 300 level or higher.) (Restrictions: Registration is restricted to Honours and Major students in Chemistry and requires the approval of the Director of the Undergraduate Studies in the Department of Chemistry.) Supervised research.

CHEM 419 Advances in Chemistry of Atmosphere.
(3) (Winter) (3 lectures) (Prerequisites: CHEM 243, and CHEM 263 or CHEM 213 and CHEM 273, MATH 222 and MATH 315 (or equivalents) or permission of instructor.) (Restriction: Not open to students who have taken ATOC 419, CHEM 619, or ATOC 619) (Offered in even years. Students should register in ATOC 419 in odd years.) Selected areas of atmospheric chemistry from field and laboratory to theoretical modelling are examined. The principles of atmospheric reactions (gas, liquid and heterogeneous phases in aerosols and clouds) and issues related to chemical global change will be explored.

CHEM 462 Green Chemistry.
(3) (Fall) (Prerequisites: CHEM 302 and CHEM 381) New reactions and methods which can be used for the production of chemicals from renewable feedstocks; the use of new environmentally benign solvents, catalysts and reagents; organic reactions in aqueous media and in supercritical carbon dioxide; bio-catalysis and bio-processes.

CHEM 470 Research Project 1.
(6) (Fall, Winter) (Prerequisite: registration by Departmental permission only.) An course designed to give students research experience. The student will be assigned a project supervisor and the student will complete a literature survey, experimental or theoretical work, a written research report and an oral examination.

CHEM 470D1 (3), CHEM 470D2 (3) Research Project 1.
(Fall, Winter) (Students must register for both CHEM 470D1 and CHEM 470D2.) (Restriction: Not open to students who have taken CHEM 402.) This course will cover biologically relevant molecules, particularly nucleic acids, proteins, and their building blocks. In each case, synthesis and biological functions will be discussed. The topics include synthesis of oligonucleotides and peptides; chemistry of phosphates; enzyme structure and function; coenzymes, and enzyme catalysis; polyketides; antiviral and anticancer agents.

CHEM 490D1 (1.5), CHEM 490D2 (1.5) Research Project 2.
(Fall, Winter) (Students must register for both CHEM 490D1 and CHEM 490D2.) (No credit will be given for this course unless both CHEM 490D1 and CHEM 490D2 are successfully completed in consecutive terms) A course designed to give Honours students research experience. The student will be assigned a project supervisor and a research project at the beginning of the session. The project will consist of a literature survey, experimental or theoretical work, a written research report and an oral examination.

CHEM 500 Advanced Bio-Organic Chemistry.
(3) (Winter) (Prerequisite: CHEM 302) (Restriction: Open to students who have taken CHEM 402.) This course will cover biologically relevant molecules, particularly nucleic acids, proteins, and their building blocks. In each case, synthesis and biological functions will be discussed. The topics include synthesis of oligonucleotides and peptides; chemistry of phosphates; enzyme structure and function; coenzymes, and enzyme catalysis; polyketides; antiviral and anticancer agents.

CHEM 503 Drug Design and Development 1.
(3) (Fall) (Prerequisites: CHEM 302, BIOL 200, BIOL 201 or BIOL 212, or permission of instructor) (Restriction: U3 and graduate students. Students can register only with permission of coordinators.) Interdisciplinary course in drug design and development covering combinatorial chemistry, process chemistry, structure-activity relationship, pharmacokinetics and metabolism, mechanisms of action and steps in drug development, and principles and problems in drug design.

CHEM 504 Drug Design and Development 2.
(3) (Winter) (Prerequisite: CHEM 503 and permission of instructor) (Restriction: U3 and graduate students. Students can register only with permission of coordinators.) Computational methods used in drug design and discovery including QSAR, docking/scoring, molecular mechanics and molecular dynamics, QM/MM, library profiling and library design.

CHEM 514 Biophysical Chemistry.
(3) (Winter) (Prerequisite: CHEM 203 or CHEM 204 or CHEM 223 and CHEM 243, or permission of instructor.) (Restriction: Not open to students who have taken CHEM 404.) Physical chemistry concepts needed to understand the function of biological systems at the molecular level, including the structure, stability, transport, and interactions of biological macromolecules.

CHEM 520 Methods in Chemical Biology.
(3) (Fall) (Prerequisites: BIOL 200 and CHEM 345 and CHEM 302, or permission of instructor) An overview of advanced techniques at the leading edge of Chemical Biology, including some or all of: biological imaging, kinetics of enzyme inhibition, combinatorial synthesis, atomic force microscopy of biological molecules, self assembling biomimetic structures, oligonucleotide therapeutics, biomolecular X-ray
crystallography, computational methods, and nuclear magnetic resonance applied to protein interactions.

**CHEM 522 Stereochemistry.**
(3) (Winter) (Prerequisite: CHEM 302) (Restriction: Not open to students who have taken CHEM 623) Stereoisomers, their nomenclature and configuration. Conformational analysis, separation of stereoisomers, and stereocontrol in organic synthesis.

**CHEM 531 Chemistry of Inorganic Materials.**
(3) (Winter) (Prerequisite: CHEM 381) Structure, bonding, synthesis, properties and applications of covalent, ionic, metallic crystals, and amorphous solids. Defect structures and their use in synthesis of specialty materials such as electronic conductors, semiconductors, and superconductors, and solid electrolytes. Basic principles of composite materials and applications of chemistry to materials processing.

**CHEM 533 Small Molecule Crystallography.**
(3) (Winter) (Prerequisite: CHEM 355 or permission of instructor.) Fundamentals of x-ray diffraction related to small molecule structure resolution, space groups, diffraction theory, strategies for structure solution, and refinement will be covered.

**CHEM 534 Nanoscience and Nanotechnology.**
(3) (Fall) (Prerequisites: CHEM 334 or PHYS 334 or permission of instructor) (Corequisites: one of CHEM 345, PHYS 357, or PHYS 446 or permission of instructor) (Restriction: Not open to students who have taken PHYS 534) Topics discussed include scanning probe microscopy, chemical self-assembly, computer modelling, and microfabrication/micromachining.

**CHEM 543 Chemistry of Pulp and Paper.**
(3) (Fall) (Prerequisite: CHEM 302 or permission of instructor.) The industrial processes for converting wood to paper are described with emphasis on the relevant organic, physical, surface chemistry and colloid chemistry. The structure and organization of the polymeric constituents of wood are related to the mechanical, optical and other requisite properties of paper.

**CHEM 547 Laboratory Automation.**
(3) (Winter) (Prerequisite: CHEM 377, equivalent or permission of instructor) Automation and data handling with respect to modern chemical laboratory instrumentation. Basic electronics, data acquisition, evaluation of laboratory needs, data processing methodologies.

**CHEM 552 Physical Organic Chemistry.**
(3) (Fall) (Prerequisite: CHEM 302) The correlation of theory with physical measurements on organic systems; an introduction to photochemistry; solvent and substituent effects on organic reaction rates, etc.; reaction mechanisms.

**CHEM 553 NMR Spectroscopy.**
(3) (Fall) (Prerequisite: CHEM 355 or equivalent) Interpretation of proton and carbon-13 nuclear magnetic resonance spectroscopy in one dimension for structural identification.

**CHEM 556 Advanced Quantum Mechanics.**
(3) (Fall) (Prerequisites: CHEM 345 and PHYS 242) Quantum mechanical treatment of species of chemical interest. Introduction to perturbation theory, both time-dependent and time-independent. Treatment of the variational principle. Introduction to atomic spectra. Chemical bonding in terms of both the valence bond and molecular orbital theory. Elementary collision theory. Interaction of radiation with molecules.

**CHEM 557 Chemometrics: Data Analysis.**
(3) (Winter) (Prerequisite: Linear Algebra and experience in some computer programming language) Topics covered include: factorial analysis of chemical spectra, pattern recognition from multisensor data, linear and nonlinear optimization for the determination of optimal reaction conditions, molecular modelling, multisensor calibration, etc.

**CHEM 571 Polymer Synthesis.**
(3) (Fall) (Prerequisite: CHEM 302 or equivalent, or permission of instructor.) A survey of polymer preparation and characterization; mechanisms of chain growth, including free radical, cationic, anionic, condensation and transition metal-mediated polymerization, and the effects of these mechanisms on polymer architecture; preparation of alternating, block, graft and stereoblock copolymers; novel macromolecular structures including dendrimers and other nanostructures.

**CHEM 572 Synthetic Organic Chemistry.**
(3) (Winter) (Prerequisite: CHEM 382) Synthetic methods in organic chemistry and their application to the synthesis of complex molecules.

**CHEM 574 Introductory Polymer Chemistry.**
(3) (Fall) (Prerequisite(s): CHEM 223 and CHEM 243 or CHEM 213 and CHEM 273, or CHEM 233 (for engineering students only), or permission of the instructor.) (Restriction(s): Not open to students who have taken CHEM 455 or CHEM 674.) A survey course on the structure of polymers, kinetics and mechanisms of polymer and copolymer synthesis; characterization and molecular weight distributions; polymer microstructure, the thermodynamics of polymer solutions; the crystalline and amorphous states, rubber elasticity and structure-property relationships.

**CHEM 575 Chemical Kinetics.**
(3) (Winter) (Prerequisites: CHEM 273 and CHEM 223/CHEM 243 (formerly CHEM 213).) Kinetic laws, measurement of reaction rates, transition state and collision theory, experimental techniques in reaction kinetics, reaction mechanisms, RRKM theory, Marcus theory of electron transfer, photochemistry and catalysis. Recent developments and their application to chemical and biological problems. Elementary reactions in gas, solution and solid phases and on surfaces.

**CHEM 581 Inorganic Topics 1.**
(3) (Winter) (Prerequisite: CHEM 381) An introduction to some areas of current interest in inorganic chemistry. Each year a selection of several particularly active areas will be chosen.

**CHEM 582 Supramolecular Chemistry.**
(3) (Winter) (Prerequisites: CHEM 222, CHEM 381) Introduction to supramolecular organization will be followed by discussions on the nature of interactions and methodologies to create ordered aggregates of high complexity. Potential of supramolecular chemistry in fabricating smart materials will be explored using specific topics including inclusion chemistry, dendrimers, molecular self-assembly and crystal engineering.

**CHEM 585 Colloid Chemistry.**
(3) (Winter) (Prerequisites: CHEM 345, MATH 233 and MATH 315, PHYS 241 and PHYS 242. Students who haven't taken CHEM 223 and CHEM 243 must have taken CHEM 273 or permission of instructor.) Principles of the physical chemistry of phase boundaries. Electrical double layer theory; van der Waals forces; Brownian motion; kinetics of coagulation; electrokinetics; light scattering; solid/liquid interactions; adsorption; surfactants; hydrodynamic interactions; rheology of dispersions.

**CHEM 587 Topics in Modern Analytical Chemistry.**
(3) (Winter) (Prerequisites: CHEM 367 and CHEM 377) A survey of recent topics in optical spectroscopic micro-imaging including methods based on Raman, photo-luminescence, photo-thermal and infra-red absorption. Coverage is also given to analysis of the optics, instrumentation and image processing specific to spectroscopic imaging.

**CHEM 591 Bioinorganic Chemistry.**
(3) (Winter) (Prerequisite: CHEM 381) (Restriction: For Honours and Major Chemistry students or with permission) The roles of transition and main group elements in biology and medicine will be examined with an emphasis on using tools for structure and genome searching as well as becoming acquainted with experimental spectroscopic methods useful for bioinorganic chemistry such as macromolecular X-ray diffraction, EPR and EXAFS.

**CHEM 593 Statistical Mechanics.**
(3) (Winter) (Research project) (Prerequisite: CHEM 345. Recommended: CHEM 365) Basic hypotheses of statistical thermodynamics; ideal monatomic, diatomic and polyatomic gases; Einstein and Debye models of solids; statistical theory of black-body radiation; Debye-Hückel theory of electrolyte solutions; absolute reaction rate theory of rate processes; theories of solutions.
CHEM 597 Analytical Spectroscopy.  
(3) (Fall) (Prerequisites: CHEM 367 and CHEM 377) The design and analytical use of spectroscopic instrumentation with respect to fundamental and practical limitations. Classical emission, fluorescence, absorption and chemical luminescence. Topics may include photo-acoustic spectroscopy, multielement analysis, X-ray fluorescence and modern multwavlength detector systems.

COMP-Computer Science  
Offered by: Computer Science

COMP 102 Computers and Computing.  
(3) (3 hours) (Prerequisite: high school level mathematics course on functions.) (Restrictions: Credit will not be given for COMP 102 if it is taken concurrently with, or after, any of: COMP 202, COMP 203, COMP 208, COMP 250. Management students cannot receive credit for COMP 102.) A course for students with no previous knowledge of computer science. The impact of computers on society. Web design and dynamic content. The inner workings of computers (hardware). Networking principles. Algorithm design and programming. A look at how computers store data (image, sound, and video). Software distribution policies and mechanisms.

COMP 199 FYS: Excursions in Computer Science.  
(3) (3 hours) (Prerequisite: high school mathematics) (Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) (Maximum 25) This is a seminar format course intended for freshman and other beginning students. The topics are chosen to encourage critical discussion of fundamental ideas. Possible topics are computability, complexity, geometry, vision, AI, pattern recognition, machine models, cryptography and security and social implications of computing.

COMP 202 Introduction to Computing 1.  
(3) (3 hours) (Prerequisite: a CEGEP level mathematics course) (Restrictions: COMP 202 and COMP 208 cannot both be taken for credit. COMP 202 is intended as a general introductory course, while COMP 208 is intended for students interested in scientific computation. COMP 202 cannot be taken for credit with or after COMP 250) Overview of components of microcomputers, the internet design and implementation of programs using a modern high-level language, an introduction to software design and debugging. Programming concepts are illustrated using a variety of application areas.

• COMP 203 Introduction to Computing 2.  
(3) (3 hours) (Prerequisites: MATH 133 and COMP 202) (Restrictions: COMP 203 and COMP 250 are considered to be equivalent from a prerequisite point of view, and cannot both be taken for credit. Students who are registered in the following programs: Major or Honours in Computer Science, Major in Software Engineering, any of the joint major programs offered through the Faculty of Science and the Major Concentration in Foundations of Computing, in the Faculty of Arts, may not take this course.) Basic data structures. Representation of arrays, stacks, and queues. Linked lists and their applications to binary trees. Internal sorting. Graph representation. Elementary graph algorithms.

COMP 206 Introduction to Software Systems.  
(3) (3 hours) (Prerequisite: COMP 202 or COMP 250) Comprehensive overview of programming in C, use of system calls and libraries, debugging and testing of code; use of developmental tools like make, version control systems.

COMP 208 Computers in Engineering.  
(3) (3 hours) (Prerequisite: differential and integral calculus.) (Corequisite: linear algebra; determinants, vectors, matrix operations.) (Restrictions: COMP 202 and COMP 208 cannot both be taken for credit. COMP 202 is intended as a general introductory course, while COMP 208 is intended for students interested in scientific computations. Credit for either of these courses will not count towards the 60-credit Major in Computer Science. COMP 208 cannot be taken for credit with or after COMP 250.) Introduction to computer systems. Concepts and structures for high level programming. Elements of structured programming using FORTRAN 90 and C. Numerical algorithms such as root finding, numerical integration and differential equations. Non-numerical algorithms for sorting and searching.

COMP 230 Logic and Computability.  
(3) (3 hours) (Prerequisite: CEGEP level mathematics.) Propositional Logic, predicate calculus, proof systems, computability Turing machines, Church-Turing thesis, unsolvable problems, completeness, incompleteness, Tarski semantics, uses and misuses of Gödel's theorem.

COMP 250 Introduction to Computer Science.  
(3) (3 hours) (Prerequisites: Familiarity with a high level programming language and CEGEP level Math.) (Restrictions: COMP 203 and COMP 250 are considered to be equivalent from a prerequisite point of view, and cannot both be taken for credit.) An introduction to the design of computer algorithms, including basic data structures, analysis of algorithms, and establishing correctness of programs. Overview of topics in computer science.

COMP 251 Data Structures and Algorithms.  
(3) (3 hours) (Prerequisite: COMP 250 or COMP 203.) (Restrictions: Not open to students who have taken or are taking COMP 252.) Design and analysis of algorithms. Complexity of algorithms. Data structures. Introduction to graph algorithms and their analysis.

COMP 252 Algorithms and Data Structures.  
(3) (3 hours) (Prerequisite: COMP 250 and MATH 240.) (Restrictions: Open only to students registered in following programs: Honours in Computer Science, Joint Honours in Mathematics and Computer Science, Honours in Applied Mathematics, Honours in Mathematics. Not open to students who have taken or are taking COMP 251.) (Note: COMP 252 can be used instead of COMP 251 to satisfy prerequisites.) The design and analysis of data structures and algorithms. The description of various computational problems and the algorithms that can be used to solve them, along with their associated data structures. Proving the correctness of algorithms and determining their computational complexity.

COMP 273 Introduction to Computer Systems.  
(3) (3 hours) (Corequisite: COMP 206.) Number representations, combinational and sequential digital circuits, MIPS instructions and architecture datapath and control, caches, virtual memory, interrupts and exceptions, pipelining.

• COMP 280 History and Philosophy of Computing.  

COMP 302 Programming Languages and Paradigms.  
(3) (3 hours) (Prerequisite: COMP 250 or COMP 203) Programming language design issues and programming paradigms. Binding and scoping, parameter passing, lambda abstraction, data abstraction, type checking. Functional and logic programming.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.

Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.

Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
COMP 303 Software Development.
(3) (3 hours) (Prerequisites: COMP 206, COMP 250.)
(Corequisite: COMP 302.) (The course involves a significant project.) Principles, mechanisms, techniques, and tools for object-oriented software development: encapsulation, design patterns, unit testing, etc.

- COMP 304 Object-Oriented Design.
(3) (3 hours) (Prerequisites: COMP 206, COMP 251, COMP 302) The object model, objects and classes, verification and testing, object-oriented analysis, unified modeling language and design patterns.

COMP 306 Computer Systems Lab.
(1) (1 hour) (Prerequisite: COMP 273.) Digital circuitry and programming interface of peripheral circuit boards (cards), e.g., graphics cards; introduction to tools and libraries that interact with the card; performance issues.

COMP 310 Operating Systems.
(3) (3 hours) (Prerequisite: COMP 273) Control and scheduling of large information processing systems. Operating system software - resource allocation, dispatching, processors, access methods, job control languages, main storage management. Batch processing, multiprogramming, multiprocessing, time sharing.

COMP 321 Programming Challenges.
(1) (1 hour) (Prerequisites: COMP 250 or COMP 206 or COMP 203, MATH 223 and MATH 240.) (Note: At the end of the class, interested students are encouraged to join the McGill team to participate in the annual ACM International Collegiate Programming Competition.) Development of programming skills on tricky challenges, games and puzzles by means of programming competitions.

COMP 322 Introduction to C++.
(1) (1 hour) (Prerequisites: COMP 202 or COMP 250 or COMP 206 or COMP 208. Ability to program in general is presumed. Some familiarity with the C language is assumed.) Basics and advanced features of the C++ language. Syntax, memory management, class structure, method and operator overloading, multiple inheritance, access control, stream I/O, templates, exception handling.

COMP 330 Theoretical Aspects: Computer Science.
(3) (3 hours) (Prerequisite: COMP 251.) Mathematical models of computers, finite automata, Turing machines, counter machines, push-down machines, computational complexity.

(3) (3 hours) (Corequisite: COMP 302) This course in software engineering teaches basic concepts and methods for software development. The focus is on engineering and analysing requirements, design, and code. Small software development exercises will be given where students would learn how to apply different methods.

COMP 350 Numerical Computing.

COMP 360 Algorithm Design Techniques.
(3) (3 hours) (Prerequisites: Either COMP 251 or COMP 252, and either MATH 240 or MATH 235 or MATH 363.) (Restriction: Not open to students who have taken or are taking COMP 362.) A study of techniques for the design and analysis of algorithms.

COMP 361D1 (3), COMP 361D2 (3) Software Engineering Project.
(Prerequisites: COMP 206, COMP 250) (Corequisite: COMP 303) (Restriction: Not open to students who have taken the 3 credit version of COMP 361.) (Students must register for both COMP 361D1 and COMP 361D2.) No credit will be given for this course unless both COMP 361D1 and COMP 361D2 are successfully completed in consecutive terms) Software development process in practice: requirement elicitation and analysis, software design, implementation, integration, test planning, and maintenance. Application of the core concepts and techniques through the realization of a large software system.

COMP 362 Honours Algorithm Design.
(3) (3 hours) (Prerequisite: COMP 252) (Restriction: Not open to students who have taken or are taking COMP 360.) (Note: COMP 362 can be used instead of COMP 360 to satisfy prerequisites.) Basic algorithmic techniques, their applications and limitations. Problem complexity, how to deal with problems for which no efficient solutions are known.

COMP 364 Computer Tools for Life Sciences.
(3) (3 hours) (Prerequisite: BIOL 201.) (Restriction: Not available to students in Computer Science or Joint Computer Science programs.) (Note: It is recommended that students have already taken a laboratory course (e.g., BIOL 301 Cell and Molecular Laboratory). Topics motivated by biological questions.) Concepts and tools for programmatic storage, retrieval, searching, numerical analysis, and visualization of large biological data sets.

COMP 396 Undergraduate Research Project.
(3) (3 hours) (Restrictions: This course cannot be taken under S/U option. Departmental permission required. Students cannot be supervised by the same instructor for two 396 Science courses. Open to students in programs offered by the Faculty of Science only.) (Note: Enrolment may be limited. Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects. Some projects may be accessible to students in other disciplines. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) Independent research project with a final written report.

COMP 400 Technical Project and Report.
(3) (3 hours) (Prerequisites: 15 Computer Science credits.)
(Restriction: For Honours students) A computer related project, typically a programming effort, along with a report will be carried out in cooperation with a staff member in the School of Computer Science.

COMP 401 Project in Biology and Computer Science.
(3) (3 hours) (Prerequisites: COMP 251 and 9 credits of BIOL courses, BIOL 301 recommended.) (Restriction: Registration in the Biology and Computer Science joint major.) (Note: having taken BIOL 301 before COMP 401 is beneficial for finding a project within a Biology lab.) A research project applying computational approaches to a biological problem. The project is (co)-supervised by a professor in Computer Science and/or Biology. A program advisor from each department has to approve the project.

- COMP 409 Concurrent Programming.
(3) (3 hours) (Prerequisites: COMP 251, COMP 302, and COMP 310 or ECSE 427) Characteristics and utility of concurrent programs; formal methods for specification, verification and development of concurrent programs; communications, synchronization, resource allocation and management, coherency and integrity.

COMP 417 Introduction Robotics and Intelligent Systems.
(3) (3 hours) (Prerequisites: COMP 424 and MATH 223.)

COMP 421 Database Systems.
(3) (3 hours) (Prerequisites: COMP 206, COMP 251, COMP 302) Database Design: conceptual design of databases (e.g., entity-relationship model), relational data model, functional dependencies. Database Manipulation: relational algebra, SQL, database application programming, triggers, access control. Database Implementation: transactions, concurrency control, recovery, query execution and query optimization.
COMP 423 Data Compression.  
(3) (3 hours) (Prerequisites: COMP 251, MATH 223, MATH 323) Information Theory. Huffman, arithmetic and dictionary codes. Context Modelling. Lossy compression and quantization. Signal processing. Applications to text, image, speech, audio and video data.

COMP 424 Artificial Intelligence.  
(3) (3 hours) (Prerequisites: COMP 206 or ECSE 321) and COMP 251) Introduction to search methods. Knowledge representation using logic and probability. Planning and decision making under uncertainty. Introduction to machine learning.

COMP 435 Basics of Computer Networks.  
(3) (3 hours) (Prerequisite: COMP 310) (COMP 435 and COMP 535 cannot both be taken for credit.) Exposition of the first four layers of the ISO model for computer network protocols. Socket programming. Network administration and configuration and security issues.

COMP 462 Computational Biology Methods.  
(3) (3 hours) (Prerequisites: COMP 251 and MATH 323) (Restriction: Not open to students who have taken COMP 562. Not open to students who are taking or have taken COMP 561.) Application of computer science techniques to problems arising in biology and medicine, techniques for modeling evolution, aligning molecular sequences, predicting structure of a molecule and other problems from computational biology.

COMP 490 Introduction to Probabilistic Analysis of Algorithms.  
(3) (3 hours) (Prerequisites: COMP 251 and MATH 323) Fundamental tools from probability are used to analyze algorithms. Notions covered included independence, generating functions, probability inequalities, random walks and Markov chains. Analysis of probabilistic recurrences, Las Vegas algorithms, randomized approximation algorithms, random sampling methods, Monte Carlo techniques and algorithms for combinatorial search and graph theoretic problems.

COMP 499 Undergraduate Bioinformatics Seminar.  
(1) (1 hour) (Corequisite(s): BIOL 495) (Restriction(s): Registration in the Computer Science and Biology joint major) Introduction to current research topics in bioinformatics through a series of seminars by invited researchers.

COMP 506 Advanced Analysis of Algorithms.  
(3) (3 hours) (Prerequisite: COMP 330 or COMP 360 or COMP 431.) The study of computational complexity and intractability: Cook's Theorem, NP-completeness, oracles, the polynomial hierarchy, lower bounds, heuristics, approximation problems.

COMP 507 Computational Geometry.  
(3) (3 hours) (Prerequisite: COMP 360 or COMP 362 or permission of instructor or corequisite COMP 506.) Problems in computational geometry; worst-case complexity of geometric algorithms; expected complexity of geometric algorithms and geometric probability; geometric intersection problems; nearest neighbour searching; point inclusion problems; distance between sets; diameter and convex hull of a set; polygon decomposition; the Voronoi diagram and other planar graphs; updating and deleting from geometric structures.

COMP 512 Distributed Systems.  
(4) (4 hours) (Prerequisites: COMP 310, COMP 251 or equivalent.) Models and Architectures. Application-oriented communication paradigms (e.g. remote method invocation, group communication). Naming services. Synchronization (e.g. mutual exclusion, concurrency control). Fault-tolerance (e.g. process and replication, agreement protocols). Distributed file systems. Security. Examples of distributed systems (e.g. Web, CORBA). Advanced Topics.

COMP 520 Compiler Design.  
(4) (3 hours, 1 hour consultation) (Prerequisites: COMP 273 and COMP 302) The structure of a compiler. Lexical analysis. Parsing techniques. Syntax directed translation. Run-time implementation of various programming language constructs. Introduction to code generation for an idealized machine. Students will implement parts of a compiler.

COMP 521 Modern Computer Games.  
(4) (4 hours) (Prerequisite: COMP 303 or COMP 361.) (Corequisite: COMP 557.) Genre and history of games, basic game design, storytelling and narrative analysis, game engines, design of virtual worlds, real-time 2D graphics, game physics and physical simulation, pathfinding and game AI, content generation, 3D game concerns, multiplayer and distributed games, social issues.

COMP 522 Modelling and Simulation.  
(4) (3 hours) (Prerequisites: COMP 251, COMP 302, COMP 350) Simulation and modelling processes, state automata, Petri Nets, state charts, discrete event systems, continuous-time models, hybrid models, system dynamics and object-oriented modelling.

COMP 523 Language-based Security.  
(3) (3 hours) (Prerequisites: COMP 302, COMP 330.) State-of-the-art language-based techniques for enforcing security policies in distributed computing environments. Static techniques (such as type- and proof-checking technology), verification of security policies and applications such as proof-carrying code, certifying compilers, and proof-carrying authentication.

COMP 524 Theoretical Foundations of Programming Languages.  
(3) (3 hours) (Prerequisites: COMP 302 and COMP 330.) Operational and denotational semantics of programming languages. Equivalence theorems for first-order languages. Lambda calculus. Type-inference, typed lambda calculus. Polymorphism. Elements of domain theory and fixed-point induction.

COMP 525 Formal Verification.  
(3) (3 hours) (Prerequisites: COMP 251 and COMP 330.) Propositional logic - syntax and semantics, temporal logic, other modal logics, model checking, symbolic model checking, binary decision diagrams, other approaches to formal verification.

COMP 526 Probabilistic Reasoning and AI.  
(3) (3 hours) (Prerequisites: COMP 206, COMP 360, COMP 424 and MATH 323) Belief networks, Utility theory, Markov Decision Processes and Learning Algorithms.

COMP 527 Logic and Computation.  
(3) (3 hours) (Prerequisite: COMP 302) (Restriction: Not open to students who have taken COMP 426) Introduction to modern constructive logic, its mathematical properties, and its numerous applications in computer science.

COMP 528 Software Architecture.  
(4) (4 hours) (Prerequisite: COMP 303 or COMP 304.) Development, analysis, and maintenance of software architectures, with special focus on modular decomposition and reverse engineering.

COMP 531 Theory of Computation.  
■ COMP 533 Object-Oriented Software Development. (3) (3 hours) (Prerequisite: COMP 335 or ECSE 321 or COMP 303 or COMP 361) Object-oriented, UML-based software development; requirements engineering based on use cases; using OCL and a coherent subset of UML to establish complete and precise analysis and design documents for a software system; Java-specific mapping strategies for implementation.

COMP 535 Computer Networks 1. (3) (3 hours) (Prerequisite: COMP 310) (Restriction: Students may not take both COMP 435 and COMP 535 for credit) Exposition of the first four layers of the ISO model for computer network protocols, i.e., the physical, data, network, and transport layers. Basic hardware and software issues with examples drawn from existing networks, notably SNA, DECnet, and ARPAnet.

COMP 540 Matrix Computations. (3) (3 hours) (Prerequisite: MATH 327 or COMP 350) Designing and programming reliable numerical algorithms. Stability of algorithms and condition of problems. Reliable and efficient algorithms for solution of equations, linear least squares problems, the singular value decomposition, the eigenproblem and related problems. Perturbation analysis of problems. Algorithms for structured matrices.

COMP 547 Cryptography and Data Security. (4) (3 hours) (Prerequisites: COMP 360 or COMP 362, MATH 323.) This course presents an in-depth study of modern cryptography and data security. The basic information theoretic and computational properties of classical and modern cryptographic systems are presented, followed by a cryptanalytic examination of several important systems. We will study the applications of cryptography to the security of systems.

■ COMP 552 Combinatorial Optimization. (4) (4 hours) (Prerequisite: Math 350 or COMP 362 (or equivalent).) (Restriction: This course is reserved for undergraduate honours students and graduate students. Not open to students who have taken or are taking MATH 552.)

Algorithmic and structural approaches in combinatorial optimization with a focus upon theory and applications. Topics include: polyhedral methods, network optimization, the ellipsoid method, graph algorithms, matroid theory and submodular functions.

■ COMP 553 Algorithmic Game Theory. (4) (Prerequisite: COMP 362 or MATH 350 or MATH 354 or MATH 487, or instructor permission) (Restriction: Not open to students who are taking or have taken MATH 553) Foundations of game theory. Computation aspects of equilibria. Theory of auctions and modern auction design. General equilibrium theory and welfare economics. Algorithmic mechanism design. Dynamic games.

COMP 557 Fundamentals of Computer Graphics. (3) (3 hours) (Prerequisite: MATH 223, COMP 251, COMP 206) The study of fundamental mathematical, algorithmic and representational issues in computer graphics. The topics to be covered are: overview of graphics process, projective geometry, homogeneous coordinates, projective transformations, quadtrees and tensors, line-drawing, surface modelling and object modelling reflectance models and rendering, texture mapping, polyhedral representations, procedural modelling, and animation.

COMP 556 Fundamentals of Computer Vision. (3) (3 hours) (Prerequisite: COMP 206, COMP 360, MATH 222, MATH 223) (Restriction: not open to students who have taken 308-766 before January 2001) Biological vision, edge detection, projective geometry and camera modelling, shape from shading and texture, stereo vision, optical flow, motion analysis, object representation, object recognition, graph theoretic methods, high level vision, applications.

■ COMP 559 Fundamentals of Computer Animation. (4) (Prerequisites: COMP 557, COMP 350) Physically-based animation, constraints, stiff systems, motion capture, rigid body motion, collision detection, deformable solids.

■ COMP 560 Graph Algorithms and Applications. (3) (3 hours) (Prerequisite: COMP 360 or COMP 431 or MATH 343) Algorithms for connectivity, partitioning, clustering, colouring and matching. Isomorphism testing. Algorithms for special classes of graphs. Layout and embedding algorithms for graphs and networks.

COMP 561 Computational Biology Methods and Research. (4) (4 hours) (Prerequisites: COMP 251, MATH 323) (Restrictions: Not open to students who have taken COMP 562. Not open to students who are taking or have taken COMP 462.) (Note: Additional work will consist of assignments and of a substantial final project that will require to put in practice the concepts covered in the course.) Application of computer science techniques to problems arising in biology and medicine, techniques for modeling evolution, aligning molecular sequences, predicting structure of a molecule and other problems from computational biology. An in-depth exploration of key research areas.

■ COMP 563 Molecular Evolution Theory. (3) (3 hours) (Prerequisites: COMP 251 or COMP 252, MATH 323 or equivalent; or by permission of instructor.)

Population genetics; statistical inference from sequence data; phylogenetics, coalescent theory; models of mutation and selection.

■ COMP 564 Computational Gene Regulation. (3) (3 hours) (Prerequisite: COMP 462) This course examines computational problems related to gene regulation at the mRNA and protein levels. With respect to mRNA expression, topics include microarray analysis, SNP detection, and the inference of genetic networks. With respect to protein expression, topics include peptide sequencing, peptide identification, and the interpretation of interaction maps.

■ COMP 566 Discrete Optimization 1. (3) (3 hours) (Prerequisites: COMP 360 and MATH 223) Use of computer in solving problems in discrete optimization. Linear programming and extensions. Network simplex method. Applications of linear programming. Implementation issues and robustness. Students will do a project on an application of their choice.

■ COMP 567 Discrete Optimization 2. (3) (3 hours) (Prerequisites: COMP 566 or MATH 417) Formulation, solution and applications of integer programs. Branch and bound, cutting plane, and column generation algorithms. Combinatorial optimization. Polyhedral methods. A large emphasis will be placed on modelling. Students will select and present a case study of an application of integer programming in an area of their choice.

COMP 575 Fundamentals of Distributed Algorithms. (3) (3 hours) (Prerequisite: COMP 310) Study of a collection of algorithms that are basic to the world of concurrent programming. Discussion of algorithms from the following areas: termination detection, deadlock detection, global snapshots, clock synchronization, fault tolerance (byzantine and self-stabilizing systems). Students will implement algorithms on the BBN butterfly and will present papers on topics in these areas.

■ COMP 577 Distributed Database Systems. (3) (3 hours) (Prerequisites: COMP 421 and COMP 310) High-level communication paradigms (e.g. client/server, publish/subscribe). Architecture of distributed information systems. Distributed transactions: concurrency control, recovery, distributed agreement. Data Replication. Data Distribution. Distributed queries. Advanced topics.

COMP 598 Topics in Computer Science 1. (3) (3 hours) (Prerequisite: Permission of instructor.) Topics in computer science.

■ COMP 599 Topics in Computer Science 2. (3) (3 hours) (Prerequisite: Permission of instructor.) Topics in computer science.
EPSC-Earth & Planetary Sciences
Offered by: Earth & Planetary Sciences

EPSC 180 The Terrestrial Planets.
(3) (Winter) (3 hours lectures) (Restriction: Not open to students who have taken EPSC 200.) A comparative survey of the planets of our solar system with an emphasis on the terrestrial planets and their implications for the Earth as a planet. Topics include: structure and origin of the solar system, meteorites, and comparisons of the terrestrial planets in terms of their rotational properties, magnetic fields, atmospheres, surface histories, internal structure, chemical composition, volcanism, and tectonics.

EPSC 181 Environmental Geology.
(3) (Winter) (3 hours lectures) (Restriction: Not open to students who have taken EPSC 243) Introduction to the relationship of geological processes and materials to the human environment; geologic hazards; hydrogeology; impacts of waste disposal, energy use, land resource development.

EPSC 182 Astrobiology.
(3) (Winter) (3 hours lectures) (This is a double-prefix course and is identical in content with ANAT 182.) (Restriction: Not open to students who have taken ANAT 205/EPSC 205 or ANAT 182.) Astrobiology is the search for the origin, evolution and destiny of life in the universe. The course will provide insight into the formation and evolution of habitable worlds, the evolution of life and the biogeochemical cycles in the Earth's oceans and atmosphere, and the potential for biological evolution beyond an organism's planet of origin.

EPSC 185 Natural Disasters.
(3) (Fall) (3 hours lectures) (This is a double-prefix course and is identical in content with ATOC 185.) (Restriction: Not open to students who have taken ATOC 250/EPSC 250 or ATOC 185.) This course examines the science behind different types of disasters and our ability or inability to control and predict such events. From this course the student will gain an appreciation of natural disasters beyond the newspaper headlines, and will better understand how the effects of disasters can be reduced.

EPSC 199 FYS: Earth & Planetary Exploration.
(3) (Fall) (3 hours lectures) Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) An exploration of how earth and planetary scientists reconstruct the current state, past progress, and initial conditions of the continuously evolving Earth experiment.

EPSC 201 Understanding Planet Earth.
(3) (Fall or Winter) (3 hours lectures; afternoon field trips) (Restriction: Not open to students who have taken or are taking EPSC 233.) Learn about Earth's origin, its place in the solar system, its internal structure, rocks and minerals, the formation of metal and fossil fuel deposits, and the extinction of dinosaurs. Discussion of the processes of the volcanic eruptions, earthquakes and mountain chains on Earth's past, present and future. Explore 125 million-year-old Mount Royal.

EPSC 203 Structural Geology.
(3) (Winter) (2 hours lectures, 3 hours laboratory) Primary igneous and sedimentary structures, attitudes of planes and lines, stress and strain, fracturing of rocks, faulting, homogeneous strain, description and classification of folds, foliation and lineation, orthographic and stereographic projections.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses taught only in alternate years.
Denotes Professional Practice (Stage) in Dietetics involving special prerequisites.
Indicates that departmental approval/permission must be obtained by a student prior to registration.
Denotes courses not available as Education electives.
Denotes courses with limited enrolment.

EPSC 210 Introductory Mineralogy.
(3) (Fall) (2 hours lectures, 3 hours laboratory) (Corequisite: EPSC 201 or EPSC 233) Crystal chemistry and identification of the principal rock-forming and ore minerals. Elementary crystallography. Optional 2-day field trip.

EPSC 212 Introductory Petrology.
(3) (Winter) (2 hours lectures, 3 hours laboratory) (Prerequisite: EPSC 210) A survey of igneous, sedimentary and metamorphic rocks and the processes responsible for their formation. The laboratory will emphasize the recognition of rocks in both hand specimen and thin section using optical microscopes.

EPSC 220 Principles of Geochemistry.
(3) (Fall) (2 hours lecture, 3 hours laboratory) Basic concepts in geochemistry and the application of geochemical principles of chemistry to geological subdisciplines. Particular emphasis on origin of elements, controls on their distribution in Earth and cosmos, isotopes, organic geochemistry and water chemistry. Application of phase diagrams to geology.

EPSC 221 General Geology.
(3) (Fall) (2 hours lectures, 3 hours laboratory) (Restriction: Open to Engineering students only.) An introductory course in physical geology designed for majors in civil and mining engineering. Properties of rocks and minerals, major geological processes, together with natural hazards and their effects on engineered structures are emphasized. The laboratory is an integral part of the course which includes rock and mineral identification, basic techniques of airphoto and geological map interpretation, and structural geology.

EPSC 225 Properties of Minerals.
(1) (Winter) (1 hour lecture, 1 hour laboratory) (Restriction: Not open to students who have taken EPSC 210) Survey of the physical and chemical properties of the main mineral groups. Discussion of their relationships to the chemical composition and structure of minerals. The practical exercises emphasize the physical and chemical properties that relate to industrial uses and environmental issues, and the identification of hand specimens.

EPSC 231 Field School 1.
(3) (Prerequisite: EPSC 203, EPSC 212, or equivalent) Geophysical mapping of selected areas, preparation of maps, reports from field notes, aerial photographs, etc.

EPSC 233 Earth and Life History.
(3) (Fall) (3 hours lectures) Interpretation of stratified rocks; history of Earth with special emphasis on the regions of North America; outline of the history of life recorded in fossils.

EPSC 312 Spectroscopy of Minerals.
(3) (Winter) (6 hours laboratory and relevant in-lab lectures) (Prerequisite: EPSC 210) Interaction of minerals with electromagnetic radiation. Optical mineralogy on thin and polished sections. Demonstrations of other spectroscopic techniques applied to the identification of minerals and to the analysis of their composition and structure.

EPSC 320 Elementary Earth Physics.
(3) (Fall) (3 hours lectures) (Prerequisite: MATH 222) Physical properties of Earth and the processes associated with its existence as inferred from astronomy, geodesy, seismology, geology, terrestrial magnetism and thermal evolution.

EPSC 330 Earthquakes and Earth Structure.
(3) (Fall) (3 hours lectures, tutorial as required) (Prerequisites: MATH 314, EPSC 320.) (Corequisites: MATH 319) Seismic wave theory; body waves, surface waves and free oscillations; seismicity and earthquakes; seismology and Earth's internal structure.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.
EPSC 334 Invertebrate Paleontology.
(3) (Winter) (2 hours lectures and one laboratory period) (Prerequisites: EPSC 231, or EPSC 320, or permission of instructor) Preservation of fossils; the fossil record of invertebrates; use of fossils in stratigraphy and paleoecology; fossils in evolutionary studies. Fossils of invertebrates are studied in the laboratory.

EPSC 340 Earth and Planetary Inference.
(3) (Winter) (2 hours lectures, 3 hours laboratory) (Prerequisites: Completion of U1 year in Earth & Planetary Sciences or permission of instructor) Introduction to modern techniques for combining geological, geophysical, and geochemical measurements with theoretical knowledge about Earth and other planets. Use of tools from time series analysis and inverse methods to build models and test hypotheses within the Earth and Planetary Sciences.

EPSC 341 Field School 3.
(3) (Two week intensive field school to a range of national and international locations.) (Prerequisites: Enrolment in U2 or U3 EPS program and permission of the instructor.) (Alternates years with EPSC 331.) Two week field studies in selected branches of the geosciences to examine processes in geology.

EPSC 350 Tectonics.
(3) (Winter) (3 hours lectures) (Prerequisites: EPSC 320, Calculus 3 or equivalent) Rheology of the Earth, mechanics of the crust and mantle and core, convection in the mantle, evolution and kinematics and deformations of the oceanic and continental plates, thermal evolution of the Earth, the unifying theory of plate tectonics.

EPSC 396 Undergraduate Research Project.
(3) (Restrictions: This course cannot be taken under the S/U option. Departmental permission required. Students cannot be supervised by the same instructor for two 396 Science courses. Open to students in programs offered by the Faculty of Science only.) (Note: Enrolment may be limited. Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects but some projects may be accessible to students in other disciplines. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) Independent research project with a final written report.

EPSC 423 Igneous Petrology.
(3) (Fall) (2 hours lectures, 3 hours laboratory) (Prerequisites: EPSC 212, EPSC 312) Physical properties, nucleation, crystallization, differentiation and emplacement of magmas. Integrated studies on various rock suites.

EPSC 425 Sediments to Sequences.
(3) (Winter) (2 hours lectures, 3 hours laboratory) (Prerequisites: EPSC 210, EPSC 212) Processes and products of modern and ancient carbonate and siliciclastic depositional environments. Sequence stratigraphy as a tool for studying the fundamental controls (sea level, tectonics, sediment supply, etc.) on stratigraphic architecture.

EPSC 435 Applied Geophysics.
(3) (Fall) (Prerequisites: EPSC 231 or EPSC 320, or permission of instructor) (3 hours lectures) (2 hours lectures, 3 hours laboratory) (The field component of the course will be held in all weather conditions. Appropriate clothing is required by the students.) Methods in geophysical surveying including gravity, magnetism, electromagnetism, resistivity and seismology; application to exploration and near surface environmental and hydrological targets are included, along with field applications of techniques.

EPSC 445 Metamorphic Petrology.
(3) (Winter) (2 hours lectures, 3 hours laboratory) (Prerequisites: EPSC 212, EPSC 312) The origin, classification and petrological significance of metamorphic rocks, from the point of view of theory, experiment and field observations.

EPSC 452 Mineral Deposits.
(3) (Fall) (2 hours lectures, 3 hours laboratory) (Prerequisite: EPSC 312, EPSC 220) A systematic review of the nature and origin of the major types of metallic and non-metallic mineral deposits; typical occurrences; geographic distribution; applications to exploration. Emphasis on magmatic ores, massive sulfides, iron formations.

EPSC 455 Sedimentary Geology.
(3) (Winter) (2 hours lectures, 3 hours laboratory) (Prerequisites: EPSC 210, EPSC 212) This course discusses the origin, diagenesis, classification and economic importance of sedimentary rocks. Students will learn about the physical properties of sedimentary rocks, including porosity and permeability, different techniques for analyzing those rocks (thin sections, hand specimens, wireline logs) and the types of sedimentary basins within which sediments accumulate.

EPSC 470D1 (3), EPSC 470D2 (3) Undergraduate Thesis Research.
(Restriction: For Major students in 3rd year) (Students must register for both EPSC 470D1 and EPSC 470D2) (No credit will be given unless both EPSC 470D1 and EPSC 470D2 are successfully completed in consecutive terms) (A written proposal outlining the research to be undertaken must be signed by the student and the supervising faculty member, and approved by the undergraduate student adviser by September 10 of the U3 year. The results of the research must be presented in the form of an undergraduate thesis.) Research project leading to a thesis.

EPSC 470N1 (3), EPSC 470N2 (3) Undergraduate Thesis Research.
(Restriction: For Major students in 3rd year) (Students must also register for EPSC 470N2) (No credit will be given unless both EPSC 470N1 and EPSC 470N2 are successfully completed in a twelve month period) (A written proposal outlining the research to be undertaken must be signed by the student and the supervising faculty member, and approved by the undergraduate student adviser by September 10 of the U3 year. The results of the research must be presented in the form of an undergraduate thesis.) Research project leading to a thesis.

EPSC 478 Short Research Project.
(1) (Fall or Winter) (Restrictions: Open only to U3 students. Students are expected to find an appropriate instructor for their project.) Supervised research project in earth and planetary sciences.

EPSC 480D1 (3), EPSC 480D2 (3) Honours Research Project.
(Fall) (Restriction: For Honours students in 3rd year) (Students must register for both EPSC 480D1 and EPSC 480D2) (No credit will be given for this course unless both EPSC 480D1 and EPSC 480D2 are successfully completed in consecutive terms) (A written proposal outlining the studies to be undertaken must be submitted to the undergraduate Student Adviser by May 1st of the U2 year. The proposal will be reviewed by a committee and a decision forwarded by mail. If approved the investigation will be supervised by a staff member, and the results must be presented in the form of an undergraduate thesis.) Research project leading to a thesis.

EPSC 480N1 (3), EPSC 480N2 (3) (Restriction: For Honours students in 3rd year) (Students must also register for EPSC 480N2) (No credit will be given for this course unless both EPSC 480N1 and EPSC 480N2 are successfully completed in a twelve month period) (A written proposal outlining the studies to be undertaken must be submitted to the undergraduate Student Adviser by May 1st of the U2 year. The proposal will be reviewed by a committee and a decision forwarded by mail. If approved the investigation will be supervised by a staff member, and the results must be presented in the form of an undergraduate thesis.)
EPSC 482 Independent Studies 1.
(3) (Fall or Winter) (May not be taken concurrently with EPSC 485) Research and/or reading project in Earth and Planetary Sciences, designed by the student in consultation with a Faculty supervisor. A statement of the proposed project and the method of evaluation must be approved by the Director of Undergraduate studies before October 15. This statement will be included in the student's file.

EPSC 482D1 (1.5), EPSC 482D2 (1.5) Independent Studies 1.
(Fall) (Students must register for both EPSC 482D1 and EPSC 482D2) (No credit will be given for this course unless both EPSC 482D1 and EPSC 482D2 are successfully completed in consecutive terms) (EPSC 482D1 and EPSC 482D2 together are equivalent to EPSC 482) Research and/or reading project in Earth and Planetary Sciences, designed by the student in consultation with a Faculty supervisor. A statement of the proposed project and the method of evaluation must be approved by the Director of Undergraduate studies before October 15. This statement will be included in the student's file.

EPSC 501 Crystal Chemistry.
(3) (Fall) (2 hours lectures, 1 hour seminar) (Prerequisites: CHEM 203 or CHEM 213) Discussion of crystal structures and compositions of important mineral groups, especially oxides, sulphides and silicates. Solid solution. Relation of structure to morphology and to chemical and physical properties of the rock-forming minerals.

EPSC 510 Geochemistry and Geomagnetism.
(3) (Fall) (3 hours lectures) (Prerequisites: EPSC 320, MATH 319, or equivalent, or permission of the instructor.) Corequisite: EPSC 350 The gravity field of the Earth and planets, body and orbital dynamics of the Earth, moon and planets, tidal interactions of the Earth-moon-sun system, deformation of the Earth under static and dynamic loads, the magnetic field of the Earth and planets: the magnetosphere, the external radiation belts, magneto hydrodynamic models of the core dynamo, geochemical convection in the core, fluid dynamic motions of the outer core, dynamics of the inner core.

EPSC 519 Isotope Geology.
(3) (Fall) (3 hours lectures) (Prerequisites: equivalent of the U2 core program.) Geochronology, the fractionation of the stable isotopes, and applications to petrology and mineral deposits.

EPSC 525 Subsurface Mapping.
(3) (Winter) (2 hours lectures, 3 hours laboratory) (Prerequisites: EPSC 455 or equivalent, or permission of instructor.) This course will provide participants the opportunity to learn how different types of data (wireline logs, seismic, etc.) are employed to map geological features in the subsurface. Lectures will teach participants about the physical basis of each of the data types, and the basic mapping and analytical techniques (e.g., geostatistics, gridding) that are employed in subsurface mapping. The principal focus will be on applying these techniques and concepts to real-world data sets.

EPSC 530 Volcanology.
(3) (Fall) (2 hours lectures, 3 hours laboratory) (Prerequisites: EPSC 212 and EPSC 312, or equivalent, or permission of instructor.) The physical mechanisms which drive volcanoes and volcanic activity are presented. Descriptive, practical and theoretical approaches to the study of volcanoes are discussed.

EPSC 542 Chemical Oceanography.

EPSC 547 Modelling Geochemical Processes.
(3) (Fall) (3 hours lectures) (Prerequisites: EPSC 220, MATH 222, or permission of instructor.) Advanced thermodynamics and kinetics will be applied to construct models that quantitatively investigate geochemical processes. Topics include, but are not restricted to: activity-composition relationships in solids, liquids and fluids, crystallization and melting, precipitation and dissolution, rates of geochemical processes, interaction of geological liquids and fluids with rocks and minerals.

EPSC 548 Processes of Igneous Petrology.
(3) (Fall) (2 hours lectures, 1 hour seminar) (Prerequisite: EPSC 423) Investigation of the primary mechanisms causing the diversity of igneous rock compositions on the Earth, other planets, asteroids, and meteorite parent bodies.

EPSC 549 Hydrogeology.

EPSC 550 Selected Topics 1.
(3) (Fall or Winter) (2 hours seminar, permission of department undergraduate advisor) Research seminar and/or lecture with readings in topics concerning aspects of current interests in Earth & Planetary Sciences.

EPSC 551 Selected Topics 2.
(3) (Fall or Winter) (2 hours seminar, permission of department undergraduate advisor) Research seminar and/or lecture with readings in topics concerning aspects of current interest in Earth & Planetary Sciences.

EPSC 552 Selected Topics 3.
(3) (Fall or Winter) (2 hours seminar, permission of department undergraduate advisor) Research seminar and/or lecture with readings in topics concerning aspects of current interest in Earth & Planetary Sciences.

EPSC 553 Selected Topics 4.
(3) (Fall or Winter) (2 hours seminar, permission of department undergraduate advisor) Research seminar and/or lecture with readings in topics concerning aspects of current interest in Earth & Planetary Sciences.

EPSC 554 Selected Topics 5.
(3) (Fall or Winter) (2 hours seminar, permission of department undergraduate advisor) Research seminar and/or lecture with readings in topics concerning aspects of current interest in Earth & Planetary Sciences.

EPSC 555 Selected Topics 6.
(3) (Fall or Winter) (2 hours seminar, permission of department undergraduate advisor) Research seminar and/or lecture with readings in topics concerning aspects of current interest in Earth & Planetary Sciences.
the solar system as a whole.
- **EPSC 580 Aqueous Geochemistry.**
  (3) (Fall) (3 hours lectures) (Prerequisites: EPSC 210, EPSC 212, or equivalent, or permission of instructor.) The use of chemical thermodynamics to study fluid-rock interactions with an emphasis on the aqueous phase. The course will introduce basic concepts and will discuss aqueous complexation, mineral surface adsorption, and other controls on crustal fluid compositions. Applications will range from considering contaminated groundwaters systems to metamorphic reactions.
- **EPSC 590 Applied Geochemistry Seminar.**
  (3) (Winter) (3 hours seminar) (Prerequisite: permission of instructor) Seminar course devoted to field case studies that illustrate the applications of geochemical principles to solving geologic problems. Each student will prepare and lead a class devoted to a geochemical subject of their own choosing.

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### ESYS-Earth System Science

**Offered by:** Earth & Planetary Sciences, Geography, Atmospheric & Oceanic Sciences

#### ESYS 104 The Earth System.

(3) (Winter) (3 hours lecture) (Restriction: Not open to students who are taking or have taken ATOC 104 or GCG 104 or EPSC 104.) Earth system science examines the complex interactions among the atmosphere, biosphere, geosphere and hydrosphere. It focuses on physical, chemical, and biological processes that extend over spatial scales ranging from microns to the size of planetary orbits, and spans time scales from fractions of a second to billions of years.

**ESYS 200 Earth System Processes.**

(3) (Winter) (3 hours lecture) (Prerequisite(s): ENVR 200 or permission of instructor.) Complex interactions among the atmosphere, biosphere, geosphere and hydrosphere. Biological, chemical and physical processes within and between each "sphere" that extend over spatial scales ranging from microns to the size of planetary orbits and that span time scales from fractions of a second to billions of years.

**ESYS 300 Investigating the Earth System.**

(3) (Fall) (3 hours lecture) (Prerequisite: ESYS 200 or equivalent.) An understanding of the biological, chemical and physical fundamentals of the Earth system and how the different components interact. The mechanisms controlling interactions between reservoirs are quantitatively investigated. Special emphasis on the development and response of the Earth system to perturbations.

**ESYS 301 Earth System Modelling.**

(3) (Winter) (3 hours lecture) (Prerequisite: ESYS 200 or ENVR 200 or equivalent.) Principal concepts of systems modelling related to earth system science and environmental science. Students explore the ideas of state, stability, equilibria, feedbacks, and complexity using simple models.

**ESYS 500 Earth System Applications.**

(3) (Fall) (3 hours seminar) Individual research projects that contribute to a group project that addresses one of the six scientific "Grand Challenges" crucial to humanity: global cycles (water and biogeochemical), climate variability and change; land use and land cover change; energy and resources; earth hazards; earth-atmosphere observation, monitoring, analysis and prediction.

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### EXMD-Experimental Medicine

**Offered by:** Medicine

#### EXMD 401 Physiology and Biochemistry Endocrine Systems.

(3) (Winter) (Prerequisite: BIOL 200 and BIOL 201) Offered in conjunction with the Department of Physiology. The course provides a basic knowledge of endocrine systems encompassing biosynthesis, metabolism and physiological actions of hormones. Specific topics covered are hormones of the hypothalamus, pituitary, adrenals, thyroid, parathyroids, pancreas, gut and the gonads. The role of hormones and growth factors in pregnancy and fetal development are also discussed.

#### EXMD 502 Advanced Endocrinology 01.

(3) (Fall) This course is designed for U3 students who are in a major or honours program in anatomy, biology, biochemistry or physiology and for graduate students. A multidisciplinary approach will be used to teach biosynthesis and processing of hormones, their regulation, function and mechanism of action. The material will cover hypothalamic, pituitary, thyroid, adrenal and pancreatic hormones as well as prostanoids and related substances.

#### EXMD 503 Advanced Endocrinology 02.

(3) (Winter) Study of the parathyroids, gut and pancreatic hormones and growth factors. In addition, the role of hormones and growth factors in reproduction and fetal maturation will be discussed.

#### EXMD 504 Biology of Cancer.

(3) (Fall) (Prerequisite (Undergraduate): A good knowledge of biology at the cellular and molecular level. Open to U3 and graduate students only) An introduction to the biology of malignancy. A multidisciplinary approach dealing with the etiology of cancer, the biological properties of malignant cells, the host response to tumour cell growth and the principles of cancer therapy.

**EXMD 506 Advanced Applied Cardiovascular Physiology.**

(3) (Fall) (Prerequisite (Undergraduate): PHGY 313 or by permission of instructors) Offered in conjunction with the Department of Physiology. Current topics, methods and techniques for studying the cardiovascular system. Basic and applied cardiovascular physiology, mechanisms of pacemaker activity, arrhythmias, the effects of drugs on cardiac functions, fetal circulation, coronary circulation, mechanics of blood flow, cardiovascular diseases, renal and neural control of the circulation, and cardiac assist devices.

#### EXMD 507 Advanced Applied Respiratory Physiology.

(3) (Fall) (Prerequisite: PHGY 313) Offered in conjunction with the Department of Physiology. In depth coverage of respiratory biology including: functional anatomy of the respiratory system, pulmonary statics and dynamics, chest wall and respiratory muscles, ventilation and perfusion, control of breathing, and defense mechanisms. This course is aimed at providing a solid grounding in pulmonary biology and its research applications.

**EXMD 508 Advanced Topics in Respiration.**

(3) (Fall) (Prerequisite: EXMD 507) Offered in conjunction with the Department of Physiology. In depth coverage of developmental physiology, pulmonary vascular physiology, biology of airway smooth muscle, respiratory epithelium and molecular biology of respiratory muscles. Dyspnea, mechanical ventilation and respiratory failure will also be covered. This course emphasizes application of respiratory biology to basic and applied research and touches on pulmonary pathophysiology.

#### EXMD 509 Gastrointestinal Physiology and Pathology.

(3) (Fall and Winter) (Prerequisite: Graduate students, U3 undergraduates) Course deals with various aspects of gastrointestinal and hepatic function in health and altered physiological states. The principal focus is on the recent literature pertaining to cell and molecular mechanisms underlying the motility secretory processes, absorption and secretion. The molecular biology of the hepatic viruses and various aspects of colonic neoplasis will also be considered.

**EXMD 510 Bioanalytical Separation Methods.**

(3) (Fall) The student will be taught the capabilities and limitations of modern separation methods (gas and high-performance liquid chromatography, capillary electrophoresis, hyphenated techniques). Application of these techniques to solve analytical problems relevant to biomedical research will be emphasized, with special attention being paid to the processing of biological samples.

#### EXMD 511 Joint Venturing with Industry.

(3) (Winter) (Offered in conjunction with the Centre for Continuing Education) Using problem-based learning, the course examines the various business interactions between researchers and their business partners in support and development of research into commercial endeavours using models such as venture capital, business partnerships, or grants-in-aid.
For more information, please see "Freshman Interest Groups" in the Faculty of Science section of the Undergraduate Programs calendar.

**FIGS-Freshman Interest Groups**

Offered by: Science

For more information, please see "Freshman Interest Groups" in the Faculty of Science section of the Undergraduate Programs calendar.

**FSCI-Faculty of Science**

Offered by: Science

**FSCI 200 Industrial Practicum 1.**

(0) (Restrictions: Must have completed at least 27 credits and have at least 12 credits remaining. Must be registered as a full-time student prior to work term. CGPA 2.7 or permission of internship officer.) Open to B.Sc., B.A. & Sc. and B.Sc./B.Ed. students, as well as qualified students in other undergraduate programs including majors in Environment, Computer Science, Geography, Mathematics and Psychology.) (Students will be graded using the Pass/Fail system. Students must be registered as a full-time student prior to and after enrollment in this course. A mandatory report must be submitted at the end of the Practicum to the Faculty of Science Internship Officer--Martine Dolmière martine.dolmiere@mcgill.ca. Completion of both the FSCI 200 and FSCI 300 courses will allow B.Sc. students to add the Internship Option to their transcript.) Paid, fulltime work-term intended to complement the student's undergraduate studies.

**FSCI 200 Industrial Practicum 2.**

(0) (Prerequisite: FSCI 200) (Restrictions: Must have completed at least 42 credits and have at least 12 credits remaining. Must be registered as a full-time student prior to work term. CGPA 2.7 or permission of internship officer.) Open to B.Sc., B.A. & Sc. and B.Sc./B.Ed. students, as well as qualified students in other undergraduate programs including majors in Environment, Computer Science, Geography, Mathematics and Psychology.) (Students will be graded using the Pass/Fail system. Students must be registered as a full-time student prior to and after enrollment in this course. A mandatory report must be submitted at the end of the Practicum to the Faculty of Science Internship Officer--Martine Dolmière martine.dolmiere@mcgill.ca. Completion of both the FSCI 200 and FSCI 300 courses will allow B.Sc. students to add the Internship Option to their transcript.) Paid, fulltime work-term intended to complement the student's undergraduate studies.

**FSCI 400 Field Practicum.**

(0) Field work intended to complement the student's undergraduate study.

**GEOG-Geography**

Offered by: Geography

**GEOG 199 FYS: Geo-Environments.**

(3) (Fall) (Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) (Maximum 25. Closed to Geography Majors) Geography studies the complex but crucial relationships between people and their physical and socio-cultural environments. The course is constructed around field trips and preparatory seminars which provide an opportunity for students to learn about a variety of physical environments and their utilisation.

**GEOG 200 Geographical Perspectives: World Environmental Problems.**

(3) (Fall) (3 hours) Introduction to geography as the study of nature and human beings in a spatial context. An integrated approach to environmental systems and the human organization of them from the viewpoint of spatial relationships and processes. Special attention to environmental problems as a constraint upon Third World development.

**GEOG 201 Introductory Geo-Information Science.**

(3) (Fall) (3 hours and lab) An introduction to Geographic Information Systems. The systematic management of spatial data. The use and construction of maps. The use of microcomputers and software for mapping and statistical work. Air photo and topographic map analyses.

**GEOG 202 Statistics and Spatial Analysis.**

(3) (Fall) (2.5 hours and lab) (You may not be able to receive credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) Exploratory data analysis, univariate descriptive and inferential statistics, non-parametric statistics, correlation and simple regression. Problems associated with analysing spatial data such as the 'modifiable areal unit problem' and spatial autocorrelation. Statistics measuring spatial pattern in point, line and polygon data.

**GEOG 203 Environmental Systems.**

(3) (Fall) (3 hours) (Restriction: Because of quantitative science content of course, not recommended for B.A. and B.Ed. students in their U0 year.) An introduction to system-level interactions among climate, hydrology, soils and vegetation at the scale of drainage basins, including the study of the global geographical variability in these land-surface systems. The knowledge acquired is used to study the impact on the environment of various human activities such as deforestation and urbanisation.

**GEOG 205 Global Change: Past, Present and Future.**

(3) (Winter) (3 hours) An examination of global change, from the Quaternary Period to the present day involving changes in the physical geography of specific areas. Issues such as climatic change and land degradation will be discussed, with speculations on future environments.

**GEOG 210 Global Places and Peoples.**

(3) (Winter) (3 hours) Introduction to key themes in human geography. Maps and the making, interpretation and contestation of landscapes, 'place', and territory. Investigation of globalization and the spatial organization of human geo-politics, and urban and rural environments.

**GEOG 216 Geography of the World Economy.**

(3) (Fall) (3 hours) The course introduces the geography of the world economic system. It describes the spatial distribution of economic activities and examines the factors which influence their changing location. Case studies from both "developed" and "developing" countries will test the different geographical theories presented in lectures.

**GEOG 217 Cities in the Modern World.**

(3) (Note: Winter) (Note: 3 hours) An introduction to urban geography. Uses a spatial/geographic perspective to understand cities and their social and cultural processes. Addresses two major areas. The development and social dynamics in North American and European cities. The urban transformations in Asian, African, and Latin American societies that were recently predominantly rural and agrarian.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

- Denotes courses taught only in alternate years.
- Indicates courses not available as Education electives.
- Indicates that departmental approval/permission must be obtained by a student prior to registration.
- Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
- Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
- Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
GEOG 221 Environment and Health.
(3) (Fall) (3 hours) (Restriction: Not open to students who have taken or are taking NRSC 221.) (Note: This course is also offered as NRSC 221. Students enrolled in downtown campus programs register in GEOG 221; students enrolled in Macdonald campus programs register in NRSC 221. In Fall 2011, GEOG 221/NRSC 221 will be taught on the Macdonald campus.) This course introduced physical and social environments as factors in human health, with emphasis on the physical properties of the atmospheric environment as they interact with diverse human populations in urban settings.

GEOG 272 Earth’s Changing Surface.
(3) (Fall) (3 hours) Introduction to the study of landforms as products of geomorphic and geologic systems acting at and near the Earth’s surface. The process geomorphology approach will be used to demonstrate how landforms of different geomorphic settings represent a dynamic balance between forces acting in the environment and the physical properties of materials present.

GEOG 290 Local Geographical Excursion.
(1) (Fall) (1 credit) (Restriction: Open to first-year Geography Major and Honours students only. Not open to students who have taken GEOG 199) (Excursion Dates: September 30-October 2, 2011) Introduction to landscape interpretation and geographical site analysis in physical and human geography. A three-day fall excursion with preparatory and concluding seminars.

GEOG 291 Independent Short Project in Geography.
(1) (Students are expected to find an appropriate advisor for their project. Proposed topic and method of evaluation must be approved by the supervisor.) (Prerequisites: GEOG 203 or GEOG 210, GEOG 216, GEOG 217, GEOG 272) (Restrictions: Restricted to students enrolled in the Geography Core Science Component, Major, Major Concentration and Honours programs. Instructor (supervisor) approval required.) Under the guidance of an instructor with the relevant expertise, the student explores a research topic in Geography and develops a written report.

GEOG 300 Human Ecology in Geography.
(3) (Winter) (3 hours) (Prerequisite: GEOG 203 or ANTH 202 or BIOL 111) The course will examine research approaches in human ecology since its inception early in this century. Emphasis will be placed on the theoretical shifts that have led to its emergence as an important social science perspective. The course will also involve case studies to evaluate the methodological utility of the approach.

GEOG 310 Geography of Nunavut.
(3) (Fall) (3 hours) An introduction to the physical and cultural geography of Canada’s newest territory. The course will emphasize the biophysical heterogeneity of the natural environment and the cultural and political ecology of the human population.

GEOG 302 Environmental Management 1.
(3) (hours) (Prerequisite: Any 200-level course in Geography or MSc or BIOL 208 or permission of instructor.) An ecological analysis of the physical and biotic components of natural resource systems. Emphasis on scientific, technological and institutional aspects of environmental management. Study of the use of biological resources and of the impact of individual processes.

GEOG 303 Health Geography.
(3) (Winter) (Prerequisite: One of the following: GEOG 201, GEOG 203, GEOG 210, GEOG 216, GEOG 217; or permission of instructor) Discussion of the research questions and methods of health geography. Particular emphasis on health inequalities at multiple geographic scales and the theoretical links between characteristics of places and the health of people.

GEOG 305 Soils and Environment.
(3) (Fall) (3 hours and laboratory) (Prerequisite: GEOG 203 or introductory course in biology or geology) Discussion of the major properties of soils; soil formation, classification and mapping; land capability assessment; the role and response of soils in natural and disturbed environments (e.g. global change, ecosystem disturbance).

GEOG 306 Raster Geo-Information Science.
(3) (Winter) (2 hours and laboratory) (Prerequisite: GEOG 201) Formal introduction to a computer-based Geographical Information System (GIS). Topics will focus on map analysis and on transforming and displaying spatial data. GIS will be used by students to solve problems in both physical and human geography.

GEOG 307 Socioeconomic Applications of GIS.
(3) (Winter) (2 hours and laboratory) (Prerequisites: GEOG 201, MATH 203 or equivalent) GIS applied to the spatial analysis of socioeconomic and market data. Topics include geographic market segmentation, geodemographics, spatial decision-support systems and modelling applications of GIS. Empirical focus is on analysing spatial patterns of population and consumption characteristics in cities and on facility location problems. Emphasis on visualization and problem solving.

GEOG 308 Principles of Remote Sensing.
(3) (Fall) (3 hours and laboratory periods) (Corequisite(s): GEOG 201) (Restriction: Not open to students who have taken ATOC 308) A conceptual view of remote sensing and the underlying physical principles. Covers ground-based, aerial, satellite systems, and the electromagnetic spectrum, from visible to microwave. Emphasis on application of remotely sensed data in geography including land cover change and ecological processes.

GEOG 309 Geography of Canada.
(3) (Winter) (3 hours) (Restriction: Cannot be taken by students who have taken CANS 303 after 2007.) An introduction to the geography of Canada. A comprehensive geographical interpretation of Canada’s salient physical and human characteristics, including landscapes and their evolution, climate, vegetation, society/land relationships and socio-economic attributes of the population.

GEOG 310 Development and Livelihoods.
(3) (Winter) (Prerequisite(s): GEOG 210 or 216 or ENVR 201 or INTD 200) Geographical dimensions of rural/urban livelihoods in the face of socioeconomic and environmental change in developing regions. Emphasis on household natural resource use, survival strategies and vulnerability, decision-making, formal and informal institutions, migration, and development experience in contrasting global environments.

GEOG 311 Economic Geography.
(3) (Winter) (3 hours) (Prerequisite: GEOG 216 or permission of instructor) Different theories and approaches to understanding the spatial organization of economic activities. Regional case studies drawn from North America, Europe and Asia used to reinforce concepts. Emphasis also on city-regions and their interaction with the global economy.

GEOG 315 Urban Transportation Geography.
(3) (Winter) (Prerequisite: GEOG 217 or permission of instructor) Discusses the urban transportation problem and proposed solutions from a geographic perspective. Specific topics include an analysis of the land use-transportation system in North American cities; its social environmental impacts; the analysis of urban travel behaviour; and the geographical implications of various policy alternatives.

GEOG 316 Political Geography.
(3) (Fall) (3 hours) The study of the spatial dimensions of political activities and developments at the regional, national and global levels in historical and contemporary perspective. Presentation of case studies relating to the theoretical framework of political geography.

GEOG 321 Climatic Environments.
(3) (Winter) (Prerequisite: GEOG 203 or ATOC 210 or permission of instructor) Scope of climatology, physical, dynamic and applied. The Earth/atmosphere system, radiative and energy balances, governing meteorological processes. Movement and circulation of the atmosphere on a local and global scale. Resulting weather systems.

GEOG 322 Environmental Hydrology.
(3) (Winter) (3 hours) (Prerequisite: GEOG 203 or equivalent) Quantitative, experimental study of the principles governing the movement of water at or near the Earth’s surface and how the research relates to the chemistry and biology of ecosystems.
GEOG 331 Urban Social Geography.
(3) (Fall) (3 hours) (Prerequisite: GEOG 216 or GEOG 217 or permission of instructor) Social space and social time. The reflection of social structure in the spatial organization of the city. Historical perspective on changing personal mobility, life cycle, family structure and work organization. The appropriation and alienation of urban spaces.

GEOG 350 Ecological Biogeography.
(3) (Fall) (3 hours) (Prerequisite: GEOG 203 or ENVR 200 or ENVR 202) (Note: Offered at Macdonald campus in alternate years.) The study of the patterns of distribution of organisms in space and time with emphasis on plant communities. Ecological, geographical, historical and anthropological factors affecting these distribution patterns will be discussed. Particular consideration is given to methods for description and classification of plant communities.

GEOG 351 Quantitative Methods.
(3) (Winter) (3 hours) (Prerequisite: MATH 203 or permission of instructor) (You may not be able to get credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) Multiple regression and correlation, logit models, discrete choice models, gravity models, facility location algorithms, survey design, population projection.

GEOG 360 Analyzing Sustainability.
(3) (Winter) (Prerequisites: ENVR 201 or equivalent; and GEOG 203 or ENVR 200 or EYSY 200 or equivalent; or permission of instructor) Examines challenges to sustainability through a series of case studies to illustrate the analytical approaches used to understand the linkages between scientific-technological, socio-economic, political-institutional, ethical, and human behavioural aspect of systems. Includes cases that are thematic and place-based, national and international, spanning from the local to global scales.

GEOG 370 Protected Areas.
(3) (Fall) (3 hours) (Prerequisite: BIOL 208 or GEOG 203 or AEBI 205) Discussion of the goals of protected areas, focusing on the potential conflict between biodiversity conservation and use for recreation, education and sustainable extraction of resources. Principles and current issues in protected area design and management are reviewed. Examples are taken from developed and developing countries.

GEOG 372 Running Water Environments.
(3) (Fall) (3 hours) (Prerequisites: GEOG 203 and GEOG 272, or ENVR 200 and ENVR 202) The course focuses on the physical habitat conditions found in streams, rivers, estuaries and deltas. Based on the laws governing flow of water and sediment transport, it emphasizes differences among these environments, in terms of channel form, flow patterns, substrate composition and mode of evolution. Flooding, damming, channelisation, forestry impacts.

GEOG 380 Adaptive Environmental Management.
(3) (Winter) (Pre/Co-requisites: GEOG 202 or equivalent, GEOG 203, ENVR 200, BIOL 215, or equivalent.) Articulates and evaluates competing hypotheses about the functioning of human-dominated ecosystems. Introduces the use of statistics, ecological modeling, and management in an integrated ecological management context. Case studies examine factors that impede and enhance adaptive management.

GEOG 381 Geographic Thought and Practice.
(3) (Winter) (3 hours) An overview of the philosophy of geography and its emergence as a discipline nationally and internationally with emphasis on current concepts and their application to geographical studies in local field work analyzing the impact of human environmental interactions.

GEOG 382 Principles Earth Citizenship.
(3) (Winter) (Restrictions: Not open to students who have taken or are taking NRSC 374. Restricted to U2 or U3 students. Enrolment limited to 50.) Foundations and applications of earth citizenship. Foundations: sustainability, well-being, commons, dominion, privatization and public welfare, resilience, precautionary principle, and land ethic are critically considered. Applications: implications for relationship between human and natural economies; human population size and control; and morality of modern agricultural and forestry practices.

GEOG 390 Managing Field Research.
(3) (Fall) (Restrictions: Open to U2 or U3 students planning field research or internship as part of their university experience. Not open to U0 or U1 students except with permission of instructor.) Skills for making field research successful, especially where human communities are involved and/or where risk management is important. Topics: characteristics of field-based research, ethical issues, researcher bias, logistics and risk management, research planning, field methods, adapting in the field.

GEOG 396 Undergraduate Research Project.
(3) (Fall and Winter) (Restrictions: This course cannot be taken under the S/U option. Departmental permission required. Students cannot be supervised by the same instructor for two 396 Science courses. Open to students in programs offered by the Faculty of Science only.) (Note: Enrolment may be limited. Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects. Some projects may be accessible to students in other disciplines. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) Independent research project with a final written report.

GEOG 403 Global Health and Environmental Change.
(3) (Fall) (Prerequisite(s): GEOG 205 OR GEOG 221 OR GEOG 321 OR GEOG 303 or Permission from the instructor.) (Restriction(s): Course not open to students who were registered for GEOG 303 in Winter 2008.) Major themes and contemporary case studies in global health and environmental change. Focus on understanding global trends in emerging infectious diseases from social, biophysical, and geographical perspectives, and critically assessing the health implications of environmental change in different international contexts.

GEOG 404 Environmental Management 2.
(3) (Winter) (Prerequisite: GEOG 302 or permission of instructor) Practical application of environmental planning, analysis and management techniques with reference to the needs and problems of developing areas. Special challenges posed by cultural differences and traditional resource systems are discussed. This course involves practical field work in a developing area (Kenya or Panama).

GEOG 406 Human Dimensions of Climate Change.
(3) (Winter) (Prerequisite: ENVR 200 or GEOG 200 or GEOG 205 or GEOG 300 or GEOG 302) This course will examine the human dimensions of climate change focusing on the vulnerability of human systems, climate change adaptation and mitigation, key policy debates, and current and future

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Denotes courses taught only in alternate years.
† Professional Practice (Stage) in Dietetics involving special prerequisites.
● Indicates that departmental approval/permission must be obtained by a student prior to registration.
‡ Denotes courses not available as Education electives.
❖ Denotes courses with limited enrolment.
❉ Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
• Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
✱ Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
challenges. Case studies will be utilized to provide context and help investigate and understand key concepts, trends, and challenges.

GEOG 407 Issues in Geography.
(3) (Winter) (3 hours) Treatment of contemporary issues in geographical research focusing on human-environmental relations and interactions. Instructor(s) and topics will be announced each term the course is given.

- GEOG 408 Geography of Development.
(3) (Fall) (3 hours) (Prerequisite: GEOG 210 or GEOG 216 or permission of instructor) Examines the geographical dimensions of development policy, specifically the relationships between the process of development and human-induced environmental change. Focuses on environmental sustainability, struggles over resource control, population and poverty, and levels of governance (the role of the state, non-governmental organizations, and local communities).

- GEOG 409 Geographies of Developing Asia.
(3) (Winter) (Prerequisite(s): GEOG 210 OR GEOG 216 OR ENVR 201 OR INTD 200 OR GEOG 310 or permission of instructor.) Current development questions that are of concern to the Asian region. Emphasis on critically studying the major processes of social, economic and environmental change through regional case studies in rural, peri-urban and urban contexts. Covers important debates and considerations that lie at the heart of development geography.

GEOG 410 Geography of Underdevelopment: Current Problems.
(3) (Winter) (3 hours) (Prerequisite: GEOG 216 or permission of instructor) An examination of the cultural, political, and economic mechanisms and manifestations of contemporary underdevelopment and the response to it from different regional and national peripheral societies within the dominant world economic system.

GEOG 416 Africa South of the Sahara.
(3) (Winter) (Offered in Kenya as part of the African Field Studies semester.) A synthetic overview of physical and cultural geography examining particularly the relation of African peoples to their landscapes, the causes and consequences of environmental changes, and the idea of sustainable development as it applies to African landscapes, resource systems and economies.

- GEOG 424 Europe: Places and Peoples.
(3) (Fall) (3 hours) (Prerequisite: At least one 300-level course in geography, anthropology, history, political science, sociology or permission of instructor.) The dynamics of change in distinct European landscapes, peoples and their cultures during the modern era with emphasis upon divergence/convergence of regional identities, emergent nationalism and their implications for contemporary issues of international cooperation.

GEOG 451 Research in Society and Development in Africa.
(3) (Winter) (Prerequisite: Open to U2 or later students in the AFSS.) (Corequisite: NRSC 452.) (Restriction: Not open to students who have taken, or are taking ANTH 451.) Three intersecting components: 1) core development themes including culture change, environmental conservation, water, health, development (urban and rural), governance and conflict resolution, 2) research techniques for topics related to core themes, including ethics, risk, field methods and data analysis, 3) field documentation, scientific recording and communication.

- GEOG 460 Research in Sustainability.
(3) (Fall) (Prerequisite: GEOG 360) Through engaging in real-world sustainability challenges through hands-on research, learn to critically analyze problems that arise at the interface of multiple disciplines including the scientific-technological, social-economics-political-institutional, ethical, and human behavioural. Develop an understanding of the leverages and road blocks in achieving a sustainability transition.

- GEOG 470 Wetlands.
(3) (Fall) (3 hours) (Restriction: Permission of instructor.) An examination of the structure, function and utility of wetlands. Topics include the fluxes of energy and water, wetland biogeochemistry, plant ecology in freshwater and coastal wetlands and wetlands use, conservation and restoration. Field trip(s) are envisaged to illustrate issues covered in class.

GEOG 490 Geography: Independent Studies.
(3) (Fall and Winter) (Prerequisites: Permission of instructor and completion of 30 credits of courses at the 200 level or above.) (Note: Before registration a project must be arranged with an instructor and a plan for the independent studies approved by the Department.) Research project permitting independent study under the guidance of a staff member specializing in the field of interest.

- GEOG 490D1 (1.5), GEOG 490D2 (1.5) Geography: Independent Studies.
(Fall) (Prerequisites: Permission of instructor and completion of 30 credits of courses at the 200 level or above.) (Students must register for both GEOG 490D1 and GEOG 490D2.) (No credit will be given for this course unless both GEOG 490D1 and GEOG 490D2 are successfully completed in consecutive terms) GEOG 490D1 and GEOG 490D2 together are equivalent to GEOG 490. (Note: Before registration a project must be arranged with an instructor and a plan for the independent studies approved by the Department.) Research project permitting independent study under the guidance of a staff member specializing in the field of interest.

GEOG 491D1 (3), GEOG 491D2 (3) Honours Research.
(Fall) (Prerequisite: 183-381) (Restriction: For U3 B.A. and B.Sc. Honours and Joint Honours Geography students) (Students must register for both GEOG 491D1 and GEOG 491D2.) (No credit will be given for this course unless both GEOG 491D1 and GEOG 491D2 are successfully completed in consecutive terms) Supervised reading, research and preparation of an undergraduate thesis under the direction of a member of staff.

GEOG 491N1 (3), GEOG 491N2 (3) Honours Research.
(Winter) (Restriction: For U3 B.A. and B.Sc. Honours and Joint Honours Geography students) (Students must also register for GEOG 491N2) (No credit will be given for this course unless both GEOG 491N1 and GEOG 491N2 are successfully completed in a twelve month period) Supervised reading, research and preparation of an undergraduate thesis under the direction of a member of staff.

GEOG 492D1 (1.5), GEOG 492D2 (1.5) Joint Honours Research.
(Fall) (Restriction: Only for those U3 Joint Honours students in Geography who opt to enrol in a parallel course in another department) (Students must also register for GEOG 492N2) (No credit will be given for this course unless both GEOG 492D1 and GEOG 492D2.) (No credit will be given for this course unless both GEOG 492D1 and GEOG 492D2 are successfully completed in consecutive terms) Supervised reading, research and preparation of an undergraduate thesis under the direction of a member of staff.

GEOG 492N1 (1.5), GEOG 492N2 (1.5) Joint Honours Research.
(Winter, Fall) (Students must also register for GEOG 492N2) (No credit will be given for this course unless both GEOG 492N1 and GEOG 492N2 are successfully completed in a twelve month period) Supervised reading, research and preparation of an undergraduate thesis under the direction of a member of staff.

- GEOG 493 Health and Environment in Africa.
(3) (Prerequisite: GEOG 211, GEOG 303 or permission of instructor) (Restrictions: Not open to students who have taken GEOG 493) Open to students in the African Field Study Semester (AFSS) only.) Exploration of key diseases of development, as well as patterns and determinants of health and disease in East Africa. Topics will focus on population and environmental health.

GEOG 494 Urban Field Studies.
(3) (Fall) (Prerequisites: One of the following: GEOG 201, GEOG 203, GEOG 210, GEOG 216, GEOG 217, GEOG 272, or permission of instructor.) (A fee of $225 is charged to all students registered in GEOG 494 Urban Field Studies. The fee is used to support the cost of transportation, accommodations, local fees and most meals for a three day field trip. The Department of Geography will subsidize a portion of the cost of this compulsory activity for students registered in Geography Honours and Majors programs.) Geographical research in urban public and semi-public spaces. Demonstration of techniques of mapping, sampling, measurement, photography, interviewing. Attention to research design.
GEOG 496 Geographical Excursion.  
(3) (Winter) (Prerequisites: GEOG 290 and permission of instructor) Lecture course on the geography of a region and excursion through the selected country or region including landscape interpretation and field study projects.

• GEOG 498 Humans in Tropical Environments.  
(3) (Winter) (6 hours lecture for 4 weeks, 3 hours seminar, 2 hours laboratory, 8 hours conference) (Restriction: Location in Panama. Student must register for a full semester of studies in Panama) (Prerequisites: HISP 218, MATH 203 or equivalents) Focus on understanding of inter-relations between humans and neotropical environments represented in Panama. Study of contemporary rural landscapes, their origins, development and change. Impacts of economic growth and inequality, social organization, and politics on natural resource use and environmental degradation. Site visits and field exercises in peasant/colonist, Amerindian, and plantation communities.

GEOG 499 Subarctic Field Studies.  
(3) (Fall) (Prerequisite: GEOG 203 or GEOG 301) An introduction to the geography of the subarctic with emphasis on the application of field methods in physical and/or human geography.

• GEOG 500 Geography of Regional Identity.  
(3) (Fall) (Restriction: Graduate students and final year undergraduates and/or those who have taken GEOG 408) The response of diverse regional groups in Europe to the centripetal tendencies of national institutions. The course draws upon examples from a variety of European regions. Contemporary regional issues will be contextualised within a spatial framework of historical geography.

GEOG 501 Modelling Environmental Systems.  
(3) (Fall) (1.15 hours lecture, 0.58 hours seminar, 0.69 hours project, 0.58 hours laboratory) (Restriction: open only to U2 or U3 students who have completed six or more credits from courses at the 300 level of Atmospheric and Oceanic Sciences, Biology, Chemistry, Earth and Planetary Sciences, Geography, Natural Resource Sciences, or a McGill School of Environment domain, or permission of the instructor) (Prerequisites: MATH 139 or MATH 140, MATH 141, and MATH 203, or equivalent) (Enrolment limited to 20 students by availability of workstations) Most problems in environmental science deal with weak relationships and poorly defined systems. Model development and simulation will be used in this course to help improve understanding of environmental systems. Simulation of environmental systems is examined, focusing on problem definition, model development and model validation.

GEOG 502 Geography of Northern Development.  
(3) (Fall) (Prerequisite (Undergraduate): GEOG 301 or GEOG 436, or permission of instructor) Analysis of the evolution of development policies and their spatial implications in circumpolar areas with an emphasis on the application of geographical concepts. Special attention is given to indigenous peoples and new immigrant populations in northern North America.
GEOG 511 Advanced Political Geography.
(3) (Restriction(s): Undergraduate students require the permission of the instructor to enroll.) (To obtain permission, students should email the instructor, Prof. Forest, benjamin.forest@mcgill.ca. The class is intended to appeal broadly to graduate students in human geography.) Questions of space and power in contemporary political geography. Range of topics, including territoriality, the state, the politics of space, critical geopolitics, symbolic landscapes, and GIS and mapping. Emphasizes theoretical issues but includes empirical and/or case studies.

GEOG 513 Behavioural Geography.
(3) (3 hours) (Prerequisite (Undergraduate): a course in introductory statistics) The development of behavioural approaches in geography. A survey of methods and findings in the area of environmental and spatial cognition, preference and choice behaviour. Models of disaggregate and aggregate travel demand.

GEOG 515 Contemporary Dilemmas of Development.
(3) (Prerequisite(s): GEOG 310, GEOG 408, or a 400-level course in development) (Restriction(s): Only open to U3 students with permission of instructor.) Analysis of acute geographic dilemmas of international development. Emphasis on 1) rural systems and the problems of agrobiodiversity, land tenure, conflict, food relief, refugees and migration, the peace process, geopolitics and diplomacy; 2) role of development programs and agendas of the international community, the workings of development On the Ground (TM).

GEOG 522 Advanced Environmental Hydrology.
(3) (2 hours and 1 tutorial) (Prerequisite: GEOG 322, or permission of instructor) (Cross-listed with CASN 300) Surface and shallow ground water determine the availability of moisture and many chemical elements at the Earth's surface. This course discusses the link between surface water and ground water flow systems and the role this link plays in stream flow production and biogeochemical cycling in lake, riparian and terrestrial ecosystems.

GEOG 523 Global Ecosystems and Climate.
(3) (Fall) (3 hours) (Prerequisite: GEOG 203 and 321 or equivalent, or permission of the instructor) Linkages and feedbacks among climate, ecosystems, and human land use at global scales. How global-scale ecological processes (primary production, carbon cycle, etc.) are driven by variations in climate and land use practices such as agriculture and deforestation. How natural and human-modified ecosystems exchange carbon and water with the atmosphere.

GEOG 530 Global Land and Water Resources.
(3) (Prerequisite(s): GEOG 203 or EYSY 200 or ENV R 200 or equivalent; GEOG 322 or BREE 217 or equivalent; or permission of instructor.) Linkage of physical processes (hydrology and ecosystems) with issues of societal and socio-economic relevance (land, food, and water use appropriation for human well-being). Application of a holistic perspective on land, food and water issues in an international setting, highlighting linkages, feedbacks and trade-offs in an Earth system context.

GEOG 535 Remote Sensing and Interpretation.
(3) (Winter) (3 hours) (Prerequisite: GEOG 308 and written permission of instructor) Basic photogrammetry and interpretation procedures for aircraft and space craft photography and imagery.

GEOG 536 Geocology.
(3) (Fall) (3 hours) (Prerequisite: GEOG 272 and any 300-level geomorphology course approved by instructor) Study of the unique geomorphic aspects of periglacial and permafrost environments. The focus will be on processes in cold climates, the impact of human activity on permafrost landscapes and potential impacts of climatic change.

GEOG 537 Advanced Fluvial Geomorphology.
(3) (Winter) (Prerequisite (Undergraduate): permission of instructor) An examination of current advances in fluvial geomorphology: sediment entrainment and transport, alluviation and river channel evolution.

GEOG 540 Topics in Geography 1.
(3) (Winter) (Prerequisite: Permission of instructor.) (Note: This course is offered on a regular basis. See Geography website (www.geog.mcgill.ca) for current status.) In-depth review of a current topic in physical geography.

GEOG 541 Topics in Geography 2.
(3) (Prerequisite: Permission of instructor.) (Note: This course is offered on an irregular basis. See Geography website (www.geog.mcgill.ca) for current status.) Intensive review of a current topic in human geography.

GEOG 542 Advanced Studies in Geography 1.
(1) (Prerequisite: Permission of instructor.) (Note: This course is offered on an irregular basis. See Geography website (www.geog.mcgill.ca) for current status.) Intensive study of a current topic or technique in physical geography.

GEOG 543 Advanced Studies in Geography 2.
(1) (Prerequisite: Permission of instructor.) (Note: This course is offered on an irregular basis. See Geography website (www.geog.mcgill.ca) for current status.) Intensive review of a current topic or technique in human geography.

GEOG 550 Historical Ecology Techniques.
(3) (Fall) (2 hours, laboratory and seminar) (Prerequisite: GEOG 350 or BIOL 215 or PLNT 460 or permission of instructor.) Principles and methods of Quaternary paleoecology and vegetation reconstruction. Examination of ecosystem response to human disturbance and environmental change.

GEOG 551 Environmental Decisions.
(3) (Fall) (2 hours seminar, 1 hour tutorial) (Prerequisites: GEOG 302, GEOG 306 or equivalents) This course deals with the role of geographic information, paradigms and modes of analysis - including but not restricted to GIS - in environmental impact assessment and decision making. The focus will be on community-based decision making, particularly where conservation issues are involved. Cross-cultural situations, developing areas and the role of non-government organizations.

GEOG 555 Ecological Restoration.
(3) (Prerequisites: GEOG 350 or BIOL 308 or PLNT 460 and permission of instructor.) (Note: Requires participation in a field trip over reading week. Offered in alternate years.) A broad overview of ecological restoration. Considers causes of environmental degradation, why and what we restore, how restoration goals are set, and standards in restoration practice, as well as critiques and philosophies of ecological restoration, such as "ecocultural" restoration.

MATH-Mathematics & Statistics

MATH 111 Mathematics for Education Students.
(3) (Winter) (Restriction: Open only to students in the B.Ed. program, not open to students who have successfully completed CEGEP course 201-101 or an equivalent. Not available for credit with MATH 112) (Offered by the Faculty of Science. Note: all Science courses have limited enrolment) An overview of the nature of mathematics and its applications. Manipulative algebra, inequalities, linear and quadratic equations. Transformational geometry and symmetry. An intuitive discussion of area and volume. Sets and functions. A brief introduction to probability and statistics.

MATH 112 Fundamentals of Mathematics.
(3) (Fall) (Restriction: Not open to students who have taken CEGEP course 201-101) (Restriction: Open only to those students who are deficient in a pre-calculus background) Equations and inequalities, graphs, relations and functions, exponential and logarithmic functions, trigonometric functions and their use, mathematical induction, binomial theorem, complex numbers.

MATH 122 Calculus for Management.
(3) (3 hours lecture, 1 hour tutorial) (Prerequisite: A course in functions.) (Restriction: Not open to students who have taken or are taking MATH 130, MATH 131, MATH 139, MATH 140, MATH 150. MATH 139, MATH 140, MATH 141, MATH 150 and MATH 151 are not open to students who have taken or are taking MATH 122, except by special permission of the Department of Mathematics and Statistics. Open
to Faculty of Management students only. Offered by the Faculty of Science. Students intending to pursue one of the major or minor concentrations in Mathematics and Statistics in the Faculty of Management should take MATH 140 or MATH 139 and MATH 141 instead.) Review of functions, exponents and radicals, exponential and logarithm. Examples of functions in business applications. Limits, continuity and derivatives. Differentiation of elementary functions. Antiderivatives. The definite integral. Techniques of Integration. Applications of differentiation and integration including differential equations. Trigonometric functions are not discussed in this course.

MATH 123 Linear Algebra and Probability.
(3) (3 hours lecture, 1 hour tutorial.) (Restrictions: Not open to students who have taken or are taking MATH 221 or MATH 130 or CEGEP objective 00UQ or equivalent.) Open to Faculty of Management students only. Offered by the Faculty of Science. Students intending to pursue one of the major or minor concentrations in Mathematics and Statistics in the Faculty of Management should take MATH 133 instead.) Geometric vectors in low dimensions. Lines and planes. Dot and cross product. Linear equations and matrices. Matrix operations, properties and rank. Linear dependence and independence. Inverses and determinants. Linear programming and tableaux. Sample space, probability, combination of events. Conditional probability and Bayes Law. Random sampling. Random variables and common distributions.

MATH 133 Linear Algebra and Geometry.
(3) (3 hours lecture, 1 hour tutorial) (Prerequisite: a course in functions) (Restriction: Not open to students who have taken MATH 221 or CEGEP objective 00UQ or equivalent.) Open to Faculty of Management students only. Offered by the Faculty of Science. Students intending to pursue one of the major or minor concentrations in Mathematics and Statistics in the Faculty of Management should take MATH 133 instead.) Geometric vectors in low dimensions. Lines and planes. Dot and cross product. Linear equations and matrices. Matrix operations, properties and rank. Linear dependence and independence. Inverses and determinants. Linear programming and tableaux. Sample space, probability, combination of events. Conditional probability and Bayes Law. Random sampling. Random variables and common distributions.

MATH 139 Calculus 1 with Precalculus.
(4) (Fall) (4 hours lecture, 1 hour tutorial) (Prerequisite: a course in functions) (Restriction: Not open to students who have taken CEGEP objective 00UN or equivalent.) (Restriction Note B: Not open to students who have taken or are taking MATH 123, MATH 130 or MATH 131, except by permission of the Department of Mathematics and Statistics.) Review of trigonometry and other Precalculus topics. Limits, continuity, derivative. Differentiation of elementary functions. Antidifferentiation. Applications.

MATH 140 Calculus 1.
(3) (3 hours lecture, 1 hour tutorial) (Prerequisite: High School Calculus) (Restriction: Not open to students who have taken MATH 120, MATH 139 or CEGEP objective 00UN or equivalent) (Restriction: Not open to students who have taken or are taking MATH 122 or MATH 130 or MATH 131, except by permission of the Department of Mathematics and Statistics.) (Each Tutorial section is enrolment limited) Review of functions and graphs. Limits, continuity, derivative. Differentiation of elementary functions. Antidifferentiation. Applications.

MATH 141 Calculus 2.
(4) (Prerequisites: MATH 139 or MATH 140 or MATH 150.) (Restriction: Not open to students who have taken MATH 121 or CEGEP objective 00UP or equivalent) (Restriction Note B: Not open to students who have taken or are taking MATH 122 or MATH 130 or MATH 131, except by permission of the Department of Mathematics and Statistics.) (Each Tutorial section is enrolment limited) The definite integral. Techniques of integration. Applications. Introduction to sequences and series.

MATH 150 Calculus A.
(4) (Fall) (3 hours lecture, 2 hours tutorial) (Students with no prior exposure to vector geometry are advised to take MATH 133 concurrently. Intended for students with high school calculus who have not received six advanced placement credits) (Restriction: Not open to students who have taken CEGEP objective 00UN or equivalent) (Restriction Note B: Not open to students who have taken or are taking MATH 122 or MATH 130 or MATH 131, except by permission of the Department of Mathematics and Statistics) (MATH 150 and MATH 151 cover the material of MATH 139, MATH 140, MATH 141, MATH 222) Functions, limits and continuity, differentiation. L'Hospital's rule, applications, Taylor polynomials, parametric curves, functions of several variables.

MATH 151 Calculus B.
(4) (Winter) (3 hours lecture, 2 hours tutorial) (Each Tutorial section is enrolment limited) (Prerequisite: MATH 150) (Restriction: Not open to students who have taken CEGEP objective 00UP or equivalent) (Restriction: Not open to students who have taken or are taking MATH 122 or MATH 130 or MATH 131, except by permission of the Department of Mathematics and Statistics) (Restriction: Not open to students who have taken MATH 152) Integration, methods and applications, infinite sequences and series, power series, arc length and curvature, multiple integration.

MATH 203 Principles of Statistics 1.
(3) (No calculus prerequisites) (Restriction: This course is intended for students in all disciplines. For extensice course restrictions covering statistics courses see Section 3.6.1 of the Arts and of the Science sections of the calendar regarding course overlaps.) (You may not be able to receive credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar. Students should consult http://www.mcgill.ca/student-records/transfercredits/ for information regarding transfer credits for this course.) Examples of statistical data and the use of graphical means to summarize the data. Basic distributions arising in the natural and behavioural sciences. The logical meaning of a test of significance and confidence intervals in the one and two sample setting (means, variances and proportions).

MATH 204 Principles of Statistics 2.
(3) (Winter) (Prerequisite: MATH 203 or equivalent. No calculus prerequisites) (Restriction: This course is intended for students in all disciplines. For extensice course restrictions covering statistics courses see Section 3.6.1 of the Arts and of the Science sections of the calendar regarding course overlaps.) (You may not be able to receive credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) The concept of degrees of freedom and the analysis of variability. Planning of experiments. Experimental designs. Polynomial and multiple regressions. Statistical computer packages (no previous computing experience is needed). General statistical procedures requiring few assumptions about the probability model.
MATH 223 Linear Algebra.  
(3) (Fall and Winter) (Prerequisite: MATH 133 or equivalent)  
(Restriction: Not open to students in Mathematics programs nor to students who have taken or are taking MATH 236, MATH 247 or MATH 251. It is open to students in Faculty Programs) Review of matrix algebra, determinants and systems of linear equations. Vector spaces, linear operators and their matrix representations, orthogonality. Eigenvalues and eigenvectors, diagonalization of Hermitian matrices. 

Applications.

MATH 235 Algebra 1.  
(3) (Fall) (3 hours lecture; 1 hour tutorial) (Prerequisite: MATH 133 or equivalent) Sets, functions and relations. Methods of proof. Complex numbers. Divisibility theory for integers and modular arithmetic. Divisibility theory for polynomials. Rings, ideals and quotient rings. Fields and construction of fields from polynomial rings. Groups, subgroups and cosets; group actions on sets.

MATH 236 Algebra 2.  

MATH 240 Discrete Structures 1.  
(3) (Fall) (Corequisite: MATH 133.) (Restriction: For students in any Computer Science program. Others only with the instructor's permission.) Not open to students who have taken or are taking MATH 235.) Mathematical foundations of logical thinking and reasoning. Mathematical language and proof techniques. Quantifiers. Induction. Elementary number theory. Modular arithmetic. Recurrence relations and asymptotics. Combinatorial enumeration. Functions and relations. Partially ordered sets and lattices. Introduction to graphs, digraphs and rooted trees.

MATH 242 Analysis 1.  
(3) (Fall) (Prerequisite: MATH 141) A rigorous presentation of sequences and of real numbers and basic properties of continuous and differentiable functions on the real line. 

MATH 243 Analysis 2.  
(3) (Winter) (Prerequisite: MATH 242) Infinite series; series of functions; power series. The Riemann integral in one variable. A rigorous development of the elementary functions.

MATH 247 Honours Applied Linear Algebra.  
(3) (Winter) (Prerequisite: MATH 133 or equivalent.) (Restriction: Intended for Honours Physics and Engineering students) Not open to students who have taken or are taking MATH 236, MATH 223 or MATH 251) Matrix algebra, determinants, systems of linear equations. Abstract vector spaces, inner product spaces, Fourier series. Linear transformations and their matrix representations. Eigenvalues and eigenvectors, diagonalizable and defective matrices, positive definite and semidefinite matrices. Quadratic and Hermitian forms, generalized eigenvalue problems, simultaneous reduction of quadratic forms. Applications.

MATH 248 Honours Advanced Calculus.  
(3) (Fall and Winter) (Prerequisites: MATH 133 and MATH 222 or consent of Department.) (Restriction: Not open to students who have taken or are taking MATH 314) Partial derivatives; implicit functions; Jacobians; maxima and minima; Lagrange multipliers. Scalar and vector fields; orthogonal curvilinear coordinates. Multiple integrals; arc length, volume and surface area. Line integrals; Green's theorem; the divergence theorem. Stokes' theorem; irrotational and solenoidal fields; applications.

MATH 249 Honours Complex Variables.  
(3) (Winter) (Prerequisite: MATH 248.) (Restriction: Intended for Honours Physics and Engineering students) Not open to students who have taken or are taking MATH 316 Functions of a complex variable; Cauchy-Riemann equations; Cauchy's theorem and consequences. Taylor and Laurent expansions. Residue calculus; evaluation of real integrals; integral representation of special functions; the complex inversion integral. Conformal mapping; Schwarz-Christoffel transformation; Poisson's integral formulas; applications.

MATH 251 Honours Algebra 2.  
(3) (Winter) (Prerequisites: MATH 235 or permission of the Department) Not open to students who are taking or have taken MATH 247) Linear equations over a field. Introduction to vector spaces. Linear maps and their matrix representation. Determinants. Canonical forms. Duality. Bilinear and quadratic forms. Real and complex inner product spaces. Diagonalization of self-adjoint operators.

MATH 255 Honours Analysis 2.  
(3) (Winter) (Prerequisites: MATH 242 or permission of the Department) Series of functions including power series. Riemann integration in one variable. Elementary functions.

MATH 262 Intermediate Calculus.  
(3) (3-1-5) (Prerequisites: MATH 141, MATH 133 or equivalent.) (Restrictions: Open only to students in the Faculty of Engineering. Not open to students who are taking or have taken MATH 151, MATH 152, OR MATH 222.) Series and power series, including Taylor's theorem. Brief review of vector geometry. Vector functions and curves. Partial differentiation and differential calculus for vector valued functions. Unconstrained and constrained extremal problems. Multiple integrals including surface area and change of variables.

MATH 263 Ordinary Differential Equations for Engineers.  
(3) (3-1-5) (Corequisite: MATH 262.) (Restrictions: Open only to students in the Faculty of Engineering. Not open to students who are taking or have taken MATH 315 or MATH 325.) First order ODEs. Second and higher order linear ODEs. Series solutions at ordinary and regular singular points. Laplace transforms. Linear systems of differential equations with a short review of linear algebra.

MATH 264 Advanced Calculus for Engineers.  
(3) (3-1-5) (Prerequisite: MATH 262 or MATH 151 or MATH 152 or equivalent.) (Corequisite: MATH 263) (Restrictions: Open only to students who are taking or have taken MATH 319 or MATH 375.) Review of multiple integrals. Differential and integral calculus of vector fields including the theorems of Gauss, Green, and Stokes. Introduction to partial differential equations, separation of variables, Sturm-Liouville problems, and Fourier series.

MATH 270 Applied Linear Algebra.  

MATH 271 Linear Algebra and Partial Differential Equations.  

MATH 314 Advanced Calculus  
(3) (Prerequisites: MATH 233 or MATH 222) (Restriction: Not open to students who have taken or are taking MATH 248) Derivative as a matrix. Chain rule. Implicit functions. Constrained maxima and minima. Jacobians. Multiple integration. Line and surface integrals. Theorems of Green, Stokes and Gauss.
MATH 315 Ordinary Differential Equations.  
(3) (Prerequisite: MATH 222.) (Corequisite: MATH 133.)  
(Restriction: Not open to students who have taken or are taking MATH 325.) First order ordinary differential equations including elementary numerical methods. Linear differential equations. Laplace transforms. Series solutions.  
MATH 316 Complex Variables.  
(3) (Fall) (Prerequisites: MATH 314 and MATH 243)  
(Restriction: Not open to students who have taken or are taking MATH 249, MATH 366, MATH 381 or MATH 466.) 
Algebra of complex numbers, Cauchy-Riemann equations, complex integrals, Cauchy's theorem, Taylor and Laurent series, residue theory and applications.  
MATH 317 Numerical Analysis.  
(3) (Fall) (Prerequisites: MATH 315 or MATH 325 or MATH 263, and COMP 202 or permission of instructor.) Error analysis. Numerical solutions of equations by iteration. Interpolation. Numerical differentiation and integration. Introduction to numerical solutions of differential equations.  
MATH 318 Mathematical Logic.  
(3) (Fall) (Restriction: Not open to students who are taking or have taken PHL 210) Propositional calculus, truth-tables, switching circuits, natural deduction, first order predicate calculus, axiomatic theories, set theory.  
MATH 319 Introduction to Partial Differential Equations.  
(3) (Winter) (Prerequisites: MATH 223 or MATH 236, MATH 314, MATH 315) First order equations, geometric theory; second order equations, classification; Laplace, wave and heat equations, Sturm-Liouville theory, Fourier series, boundary and initial value problems.  
MATH 320 Differential Geometry.  
(3) (Prerequisite: MATH 236 or MATH 223 or MATH 247, and MATH 314 or MATH 248) Review of Euclidean geometry. Local theory of plane and space curves: the Frenet formulas. Local theory of surfaces: the first and second fundamental forms, the shape operator, the mean and Gaussian curvatures, surfaces of revolution with prescribed curvature, ruled and developable surfaces. Geodesic curves on surfaces of revolution. The Gauss-Codazzi equations, rigidity.  
MATH 322 Probability.  
(3) (Prerequisites: MATH 141 or equivalent.) (Restriction: Intended for students in Science, Engineering and related disciplines, who have had differential and integral calculus) (Restriction: Not open to students who have taken or are taking MATH 356) Sample space, events, conditional probability, independence of events, Bayes' Theorem. Basic combinatorial probability, random variables, discrete and continuous univariate and multivariate distributions. Independence of random variables. Inequalities, weak law of large numbers, central limit theorem.  
MATH 324 Statistics.  
(3) (Fall and Winter) (Prerequisite: MATH 323 or equivalent) (Restriction: Not open to students who have taken or are taking MATH 357) (You may not be able to receive credit for this course and other statistics courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) Sampling distributions, point and interval estimation, hypothesis testing, analysis of variance, contingency tables, nonparametric inference, regression, Bayesian inference.  
MATH 325 Honours Ordinary Differential Equations.  
(3) (Fall and Winter) (3-0-6) (Prerequisite: MATH 222.) (Restriction: Intended for Honours Mathematics, Physics and Engineering programs.) (Restriction: Not open to students who have taken MATH 263 (formerly MATH 261), MATH 315) First and second order equations, linear equations, series solutions, Frobenius method, introduction to numerical methods and to linear systems, Laplace transforms, applications.  
MATH 326 Nonlinear Dynamics and Chaos.  
(3) (Fall) (Prerequisites: MATH 222, MATH 223) (Restriction: Not open to students who have taken or are taking MATH 376) Linear systems of differential equations, linear stability theory. Nonlinear systems: existence and uniqueness, numerical methods, one and two dimensional flows, phase space, limit cycles, Poincare-Bendixon theorem, bifurcations, Hopf bifurcation, the Lorenz equations and chaos.  
MATH 327 Matrix Numerical Analysis.  
(3) (Winter) (Prerequisites: MATH 223 or MATH 236 or MATH 247 or MATH 251, COMP 202 or consent of instructor.) An overview of numerical methods for linear algebra applications and their analysis. Problem classes include linear systems, least squares problems and eigenvalue problems.  
MATH 329 Theory of Interest.  
(3) (Winter) (Prerequisite: MATH 141) Simple and compound interest, annuities certain, amortization schedules, bonds, depreciation.  
MATH 335 Computational Algebra.  
(3) (Prerequisites: MATH 235 and MATH 236.) (Note: This course is intended primarily for students in the Major Program in Mathematics and the Joint Major Program in Mathematics and Computer Science.) Computational aspects of modern algebra. Computing in groups: algorithms, algorithmic problems in groups, finitely generated abelian groups, free groups and automata, finitely presented groups. Computing in rings: elementary notions of ring theory, ideals of polynomial rings in several variables, Groebner bases, elements of field theory.  
MATH 338 History and Philosophy of Mathematics.  
(3) (Fall) Egyptian, Babylonian, Greek, Indian and Arab contributions to mathematics are studied together with some modern developments they give rise to, for example, the problem of trisecting the angle. European mathematics from the Renaissance to the 18th century is discussed in some detail.  
MATH 339 Foundations of Mathematics.  
(3) (Winter) (Prerequisites: MATH 235, MATH 318) A continuation of MATH 338. Topics are chosen mainly from 19th and 20th century mathematics, with some emphasis on philosophical and foundational problems. Sample topics are: progress in number theory, construction of the number system, infinity according to Cantor, logic and foundations from Aristotle to Cohen, Gödel's incompleteness theorem, calculability and programs, formalism versus intuitionism, abstract mathematics and categories.  
MATH 340 Discrete Structures 2.  
(3) (Winter) (Prerequisites: MATH 235 or MATH 240 or MATH 242.) (Corequisites: MATH 223 or MATH 236.) (Restriction: Not open to students who have taken or are taking MATH 343 or MATH 350.) Review of mathematical writing, proof techniques, graph theory and counting. Mathematical logic. Graph connectivity, planar graphs and colouring. Probability and graphs. Introductory group theory, isomorphisms and automorphisms of graphs. Enumeration and listing.  
MATH 346 Number Theory.  
(3) (Winter) (Prerequisite: MATH 235 or consent of instructor) (Restriction: Not open to students who have taken or are taking MATH 377.) Divisibility. Congruences. Quadratic reciprocity. Diophantine equations. Arithmetical functions.  
MATH 348 Topics in Geometry.  
(3) (Prerequisite: MATH 133 or equivalent or permission of instructor.) Selected topics - the particular selection may vary from year to year. Topics include: isometries in the plane, symmetry groups of frieze and ornamental patterns, equidecomposability, non-Euclidean geometry and problems in
discrete geometry.

MATH 350 Graph Theory and Combinatorics.
(3) (Prerequisites: MATH 235 or MATH 240 and MATH 251 or MATH 223.) (Restrictions: Not open to students who have taken or are taking MATH 343 or MATH 340.) (Intended for students in mathematics or computer science honours programs.) Graph models. Graph connectivity, planarity and colouring. Extremal graph theory. Matroids. Enumerative combinatorics and listing.

✦ MATH 352 Problem Seminar.
(1) (Prerequisite: Enrollment in a math related program or permission of the instructor. Requires departmental approval.) (Prerequisite: Enrollment in a math related program or permission of the instructor.) Seminar in Mathematical Problem Solving. The problems considered will be of the type that occur in the Putnam competition and in other similar mathematical competitions.

MATH 354 Honours Analysis 3.
(3) (Fall) (Prerequisite: MATH 255 or equivalent) Introduction to metric spaces. Multivariable differential calculus, implicit and inverse function theorems.

MATH 355 Honours Analysis 4.

MATH 356 Honours Probability.
(3) (Fall) (Prerequisite: MATH 255 or MATH 243) (Restriction: Not open to students who have taken or are taking MATH 323) Basic combinatorial probability. Introductory distribution theory of univariate and multivariate distributions with special reference to the Binomial, Poisson, Gamma and Normal distributions. Characteristic functions. Weak law of large numbers. Central limit theorem.

MATH 357 Honours Statistics.
(3) (Winter) (Prerequisite: MATH 256 or equivalent) (Restriction: Not open to students who have taken or are taking MATH 324) Data analysis. Estimation and hypothesis testing. Power of tests. Likelihood ratio criterion. The chi-squared goodness of fit test. Introduction to regression analysis and analysis of variance.

MATH 363 Discrete Mathematics.
(3) (3-0-6) (Prerequisites: MATH 263, MATH 264.) (Restriction: Open only to students in the Faculty of Engineering.) Logic and combinatorics. Mathematical reasoning and methods of proof. Sets, relations, functions, partially ordered sets, lattices, Boolean algebra. Propositional and predicate calculus. Recurrences and graph theory.

✦ MATH 366 Honours Complex Analysis.
(3) (Prerequisite: MATH 248.) (Corequisite: MATH 354.) (Restriction: Not open to students who have taken or are taking MATH 466, MATH 249, MATH 316, MATH 381.) Functions of a complex variable, Cauchy-Riemann equations, Cauchy's theorem and its consequences. Uniform convergence on compacta. Taylor and Laurent series, open mapping theorem, Rouché's theorem and the argument principle. Calculus of residues. Fractional linear transformations and conformal mappings.

MATH 370 Honours Algebra 3.
(3) (Fall) (Prerequisite: MATH 251) Introduction to monoids, groups, permutation groups; the isomorphism theorems for groups; the theorems of Cayley, Lagrange and Sylow; structure of groups of low order. Introduction to ring theory; integral domains, fields, quotient field of an integral domain; polynomial rings; unique factorization domains.

MATH 371 Honours Algebra 4.
(3) (Winter) (Prerequisite: MATH 370) Introduction to modules and algebras; finitely generated modules over a principal ideal domain. Field extensions; finite fields; Galois groups; the fundamental theorem of Galois theory; application to the classical problem of solvability by radicals.

MATH 375 Honours Partial Differential Equations.
(3) (Fall) (Prerequisites: MATH 247 or MATH 251 or equivalent, MATH 248 or equivalent, MATH 325) First order partial differential equations, geometric theory, classification of second order linear equations, Sturm-Liouville problems, orthogonal functions and Fourier series, eigenfunction expansions, separation of variables for heat, wave and Laplace equations, Green's function methods, uniqueness theorems.

MATH 376 Honours Nonlinear Dynamics.
(3) (Fall) (Prerequisites: MATH 222, MATH 223) (Restrictions: Intended primarily for Honours students. Not open to students who have taken or are taking MATH 326.) (Note: Additionally, a special project or projects may be assigned.) This course consists of the lectures of MATH 326, but will be assessed at the honours level.

✦ MATH 377 Honours Number Theory.
(3) (Winter) (Prerequisite: Enrollment in Mathematics Honours program or consent of instructor) (Restriction: Not open to students who have taken or are taking MATH 346.) (Note: Additionally, a special project or projects may be assigned.) This course consists of the lectures of MATH 346, but will be assessed at the honours level.

MATH 380 Honours Differential Geometry.
(3) (Winter) (Prerequisites: MATH 251 or MATH 247, and MATH 248 or MATH 314) In addition to the topics of MATH 320, topics in the global theory of plane and space curves, and in the global theory of surfaces are presented. These include: total curvature and the Fary-Milnor theorem on knotted curves, abstract surfaces as 2-d manifolds, the Euler characteristic, the Gauss-Bonnet theorem for surfaces.

MATH 381 Complex Variables and Transforms.
(3) (Fall and Winter) (3-1-5) (Prerequisite: MATH 264) (Restriction: Open only to students in the Faculty of Engineering.) Analytic functions, Cauchy-Riemann equations, simple mappings, Cauchy's theorem, Cauchy's integral formula, Taylor and Laurent expansions, residue calculus. Properties of one and two-sided Fourier and Laplace transforms, the complex inversion integral, relation between the Fourier and Laplace transforms, application of transform techniques to the solution of differential equations. The Z-transform and applications to difference equations.

✦ MATH 387 Honours Numerical Analysis.
(3) (Taught in alternate years) (Winter (even years)) (Prerequisites: MATH 325 or MATH 315, COMP 202 or permission of instructor.) (Corequisites: MATH 255 or MATH 243) (Restriction: Intended primarily for Honours students.) (Note: Not open to students who have taken or are taking MATH 327 or MATH 340.) Error analysis. Numerical solutions of equations by iteration. Interpolation. Numerical differentiation and integration. Introduction to numerical solutions of differential equations.

MATH 396 Undergraduate Research Project.
(3) (Restrictions: This course cannot be taken under the S/U option. Departmental permission required. Students cannot be supervised by the same instructor for two 396 Science courses. Open to students in programs offered by the Faculty of Science only.) (Note: Enrolment may be limited. Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects. Some projects may be accessible to students in other disciplines. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) Independent research project with a final written report.

✦ MATH 397 Honours Matrix Numerical Analysis.
(3) (Winter) (Prerequisites: MATH 251 or MATH 247, COMP 202 or permission of the instructor.) The course consists of the lectures of MATH 327 plus additional work involving theoretical assignments and/or a project. The final examination for this course may be different from that of MATH 327.
MATH 407 Dynamic Programming. 
(3) (Winter) (Prerequisites: COMP 202; MATH 223 or MATH 236, MATH 314, MATH 315 and MATH 323) Sequential decision problems, resource allocation, transportation problems, equipment replacement, integer programming, network analysis, inventory systems, project scheduling, queuing theory calculus of variations, markovian decision processes, stochastic path problems, reliability, discrete and continuous control processes.

MATH 410 Majors Project. 
(3) (Prerequisite: Students must have 21 completed credits of the required mathematics courses in their program, including all required 200 level mathematics courses.) (Requires departmental approval.) A supervised project.

MATH 417 Mathematical Programming. 
(3) (Prerequisites: COMP 202, and MATH 223 or MATH 236, and MATH 314 or equivalent) (Restriction: Not open to students who have taken or are taking MATH 487.) An introductory course in optimization by linear algebra, and calculus methods. Linear programming (convex polyhedra, simplex method, duality, multi-criteria problems), integer programming, and some topics in nonlinear programming (convex functions, optimality conditions, numerical methods). Representative applications to various disciplines.

MATH 420 Independent Study. 
(3) (Fall and Winter) (Requires approval by the chair before registration) (Please see regulations concerning Project Courses under Faculty Degree Requirements) Reading projects permitting independent study under the guidance of a staff member specializing in a subject where no appropriate course is available. Arrangements must be made with an instructor and the Chair before registration.

MATH 423 Regression and Analysis of Variance. 
(3) (Fall) (Prerequisites: MATH 324, and MATH 223 or MATH 236) (Restriction: Not open to students who have taken or are taking MATH 533.) Least-squares estimators and their properties. Analysis of variance. Linear models with general covariance. Multivariate normal and chi-squared distributions, quadratic forms. General linear hypothesis: F-test and t-test. Prediction and confidence intervals. Transformations and residual plot. Balanced designs.

MATH 430 Mathematical Finance. 
(3) (Restrictions: Not open to students who have taken MATH 330. Not open to students who have taken or are taking MATH 450.) Introduction to concepts of price and hedge derivative securities. The following concepts will be studied in both concrete and continuous time: filtrations, martingales, the change of measure technique, hedging, pricing, absence of arbitrage opportunities and the Fundamental Theorem of Asset Pricing.

MATH 437 Mathematical Methods in Biology. 
(3) (Fall) (Prerequisites: MATH 315 or MATH 325, and MATH 323 or MATH 356, a CEGEP or higher level computer programming course) The formulation and treatment of realistic mathematical models describing biological phenomena through such qualitative and quantitative mathematical techniques as local and global stability theory, bifurcation analysis and phase plane analysis. Numerical simulation. Concrete and detailed examples will be drawn from molecular, cellular and population biology and mammalian physiology.

MATH 447 Introduction to Stochastic Processes. 
(3) (Winter) (Prerequisite: MATH 323) (Restriction: Not open to students who have taken or are taking MATH 547.) Conditional probability and conditional expectation, generating functions. Branching processes and random walk. Markov chains, transition matrices, classification of states, ergodic theorem, examples. Birth and death processes, queuing theory.

MATH 470 Honours Research Project. 
(3) (Fall and Winter and Summer) (Requires Departmental Approval) (Students are advised to start contacting potential project supervisors early during their U2 year.) (Prerequisite: appropriate honours courses with approval of the project supervisor) The project will contain a significant research component that requires substantial independent work consisting of a written report and oral examination or presentation.

MATH 470D1 (1.5), MATH 470D2 (1.5) Honours Research Project. 
(Requires Departmental Approval) (Please see regulations concerning Project Courses under Faculty Degree Requirements) (Students are advised to start contacting potential project supervisors early during their U2 year.) (Prerequisite: appropriate honours courses with approval of the project supervisor) (Students must register for both MATH 470D1 and MATH 470D2.) (No credit will be given for this course unless both MATH 470D1 and MATH 470D2 are successfully completed in consecutive terms) (MATH 470D1 and MATH 470D2 together are equivalent to MATH 470) The project will contain a significant research component that requires substantial independent work consisting of a written report and oral examination or presentation.

MATH 480 Honours Independent Study. 
(3) (Fall and Winter and Summer) (Requires approval by the chair before registration) Reading projects permitting independent study under the guidance of a staff member specializing in a subject where no appropriate course is available. Arrangements must be made with an instructor and the Chair before registration.

MATH 487 Honours Mathematical Programming. 
(3) (Prerequisites: MATH 248, MATH 251 and COMP 202 or COMP 250 or permission of instructor.) (Restriction: Intended primarily for honours students. Not open to students who have taken or are taking MATH 417.) (Note: Additionally, a special project or projects may be assigned.) The course consists of the lectures of MATH 417, but will be assessed at the honours level.

MATH 488 Honours Set Theory. 
(3) (Fall) (Prerequisites: MATH 251 or MATH 255 or permission of instructor) Axioms of set theory. Operations on sets. Ordinal and cardinal numbers. Well-orderings. Transfinite induction and recursion. Consequences of the axiom of choice. Boolean algebras. Cardinal arithmetic.

MATH 490 Majors Project. 
(3) (Restrictions: MATH 222, MATH 323 or equivalent. (Intended primarily for honours students.) (Restrictions: Not open to students who have taken MATH 330. Not open to students who have taken or are taking MATH 430.) (Note: Additionally, a special project or projects may be assigned.) This course consists of the lectures of MATH 430, but will be assessed at the honours level.

MATH 523 Generalized Linear Models. 
(4) (Winter) (Prerequisite: MATH 423 or EPIB 697) (Restriction: Not open to students who have taken MATH 426) Modern discrete data analysis. Exponential families, orthogonality, link functions, inference and model selection using analysis of deviance. Shrinkage (Bayesian, frequentist viewpoints). Smoothing, Residuals. Quasi-likelihood. Sliced inverse regression. Contingency tables: logistic regression, log-linear models. Censored data. Applications to current problems in medicine, biological and physical sciences. GLIM, S, software.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses taught only in alternate years.
Denotes Professional Practice (Stage) in Dietetics involving special prerequisites.
Indicates that departmental approval/permission must be obtained by a student prior to registration.
Denotes courses not available as Education electives.
Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.
Denotes courses offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
MATH 524 Nonparametric Statistics.

MATH 525 Sampling Theory and Applications.
(4) (Prerequisite: MATH 324 or equivalent) (Restriction: Not open to students who have taken MATH 425) Simple random sampling, domains, ratio and regression estimators, superpopulation models, stratified sampling, optimal stratification, cluster sampling, sampling with unequal probabilities, multistage sampling, complex surveys, nonresponse.

MATH 533 Honours Regression and Analysis of Variance.
(4) (Prerequisites: MATH 357, MATH 247 or MATH 251.) (Restriction: Not open to have taken or are taking MATH 423.) (Note: An additional project or projects assigned by the instructor that require a more detailed treatment of the major results and concepts covered in MATH 423.) This course consists of the lectures of MATH 423 but will be assessed at the 500 level.

MATH 547 Stochastic Processes.
(4) (Prerequisites: MATH 356 and either MATH 247 or MATH 251.) (Restriction: Not open to students who have taken or are taking MATH 447.) Conditional probability and conditional expectation, generating functions. Branching processes and random walk. Markov chains: transition matrices, classification of states, ergodic theorem, examples. Birth and death processes, queueing theory.

MATH 550 Combinatorics.
(4) (Intended primarily for honours and graduate students in mathematics.) (Restriction: Permission of instructor.) Enumerative combinatorics: inclusion-exclusion, generating functions, partitions, lattices and M鯾ius inversion. Extremal combinatorics: Ramsey theory, Turan's theorem, Dilworth's theorem and extremal set theory. Graph theory: planarity and colouring. Applications of combinatorics.

MATH 552 Combinatorial Optimization.
(4) (Prerequisite: MATH 350 or COMP 362 (or equivalent).) (Restriction: Not open to students who have taken or are taking COMP 552.) Algorithmic and structural approaches in combinatorial optimization with a focus upon theory and applications. Topics include: polyhedral methods, network optimization, the ellipsoid method, graph algorithms, matroid theory and submodular functions.

MATH 553 Algorithmic Game Theory.
(4) (Prerequisite: COMP 362 or MATH 350 or MATH 354 or MATH 487, or instructor permission.) (Restriction: Not open to students who are taking or have taken COMP 553.) Foundations of game theory. Computation aspects of equilibria. Theory of auctions and modern auction design. General equilibrium theory and welfare economics. Algorithmic mechanism design. Dynamic games.

MATH 555 Fluid Dynamics.
(4) (Fall) (Prerequisite (Undergraduate): MATH 315 and MATH 319 or equivalent) Kinematics. Dynamics of general fluids. Inviscid fluids, Navier-Stokes equations. Exact solutions of Navier-Stokes equations. Low and high Reynolds number flow.

MATH 556 Mathematical Statistics 1.
(4) (Fall) (Prerequisite: MATH 357 or equivalent) Probability and distribution theory (univariate and multivariate). Exponential families. Laws of large numbers and central limit theorem.

MATH 557 Mathematical Statistics 2.
(4) (Winter) (Prerequisite: MATH 556) Sampling theory (including large-sample theory). Likelihood functions and information matrices. Hypothesis testing, estimation theory. Regression and correlation theory.

MATH 560 Optimization.

MATH 564 Advanced Real Analysis 1.
(4) (Fall) (Prerequisites: MATH 354, MATH 355 or equivalents) Review of theory of measure and integration; product measures, Fubini's theorem; Lp spaces; basic principles of Banach spaces; Riesz representation theorem for C(X); Hilbert spaces; part of the material of MATH 565 may be covered as well.

MATH 565 Advanced Real Analysis 2.
(4) (Winter) (Prerequisite: MATH 564) Continuation of topics from MATH 564. Signed measures. Hahn and Jordan decompositions. Radon-Nikodym theorems, complex measures, differentiation in Rn, Fourier series and integrals, additional topics.

MATH 566 Advanced Complex Analysis.
(4) (Winter) (Prerequisites: MATH 366 (formerly MATH 466), MATH 564.) Simple connectivity, use of logarithms; argument, conservation of domain and maximum principle; analytic continuation, monodromy theorem; conformal mapping; normal families, Riemann mapping theorem; harmonic functions, Dirichlet problem; introduction to functions of several complex variables.

MATH 567 Introduction to Functional Analysis.
(4) (Prerequisite: MATH 355 or equivalent.) Banach and Hilbert spaces, theorems of Hahn-Banach and Banach-Steinhaus, open mapping theorem, closed graph theorem, Fredholm theorem, spectral theorem for compact self-adjoint operators, spectral theorem for bounded self-adjoint operators.

MATH 570 Higher Algebra 1.
(4) (Fall) (Prerequisite: MATH 371 or equivalent) Review of group theory; free groups and free products of groups. Sylow theorems. The category of R-modules; chain conditions, tensor products, flat, projective and injective modules. Basic commutative algebra; prime ideals and localization, Hilbert Nullstellensatz, integral extensions. Dedekind domains. Part of the material of MATH 571 may be covered as well.

MATH 571 Higher Algebra 2.
(4) (Winter) (Prerequisites: MATH 570 or consent of instructor) Completion of the topics of MATH 570. Rudiments of algebraic number theory. A deeper study of field extensions; Galois theory, separable and regular extensions. Semi-simple rings and modules. Representations of finite groups.

MATH 574 Dynamical Systems.

MATH 576 Geometry and Topology 1.
(4) (Fall) (Prerequisite: MATH 354) Basic point-set topology, including connectedness, compactness, product spaces, separation axioms, metric spaces. The fundamental group and covering spaces. Simplicial complexes. Singular and simplicial homology. Part of the material of MATH 577 may be covered as well.

MATH 577 Geometry and Topology 2.
MATH 576 Numerical Analysis 1.
(4) (Fall) (Prerequisites: MATH 247 or MATH 251; and MATH 387; or permission of the instructor.) Development, analysis and effective use of numerical methods to solve problems arising in applications. Topics include direct and iterative methods for the solution of linear equations (including preconditioning), eigenvalue problems, interpolation, approximation, quadrature, solution of nonlinear systems.

MATH 579 Numerical Differential Equations.
(4) (Winter) (Prerequisites: MATH 375 and MATH 387 or permission of the instructor.) Numerical solution of initial and boundary value problems in science and engineering: ordinary differential equations; partial differential equations of elliptic, parabolic and hyperbolic type. Topics include Runge Kutta and linear multistep methods, adaptivity, finite elements, finite differences, finite volumes, spectral methods.

MATH 580 Partial Differential Equations 1.
(4) (Fall) (Prerequisites: MATH 375 or equivalent) Classification and well-posedness of linear and nonlinear partial differential equations; energy methods; Dirichlet principle. Brief introduction to distributions; weak derivatives. Fundamental solutions and Green’s functions for Poisson equation, regularity, harmonic functions, maximum principle. Representation formulae for solutions of heat and wave equations, Duhamel’s principle. Method of Characteristics, scalar conservation laws, shocks.

MATH 581 Partial Differential Equations 2.

MATH 587 Advanced Probability Theory 1.
(4) (Fall) (Prerequisite: MATH 356 or equivalent and approval of instructor) Probability spaces. Random variables and their expectations. Convergence of random variables in Lp. Independence and conditional expectation. Introduction to Martingales. Limit theorems including Kolmogorov’s Strong Law of Large Numbers.

MATH 589 Advanced Probability Theory 2.
(4) (Winter) (Prerequisite: MATH 587 or equivalent) Characteristic functions: elementary properties, inversion formula, uniqueness, convolution and continuity theorems. Weak convergence. Central limit theorem. Additional topic(s) chosen (at discretion of instructor) from: Martingale Theory; Brownian motion, stochastic calculus.

MATH 590 Advanced Set Theory.
(4) (Prerequisites: MATH 318, either MATH 355 or MATH 371, or permission of the instructor.) (Restriction: Not open to students who have taken or are taking MATH 488.) Students will attend the lectures and fulfill all the requirements of MATH 488. In addition, they will study an advanced topic agreed on with the instructor. Topics may be chosen from combinatorial set theory, Goedel's constructible sets, forcing, large cardinals.

MATH 591 Mathematical Logic 1.
(4) (Winter) (Prerequisites: MATH 488 or equivalent or consent of instructor) Propositional logic and first order logic, completeness, compactness and Lowenheim-Skolem theorems. Introduction to axiomatic set theory. Some of the following topics: introduction to model theory, Herbrand's and Gentzen's theorems, Lindström's characterization of first order logic.

MATH 592 Mathematical Logic 2.
(4) (Winter) (Prerequisites: MATH 488 or equivalent or consent of instructor) Introduction to recursion theory; recursively enumerable sets, relative recursiveness; Incompleteness, undecidability and undefinability theorems of Gödel, Church, Rosser and Tarski. Some of the following topics: Turing degrees, Friedberg-Muchnik theorem, decidable and undecidable theories.

MIMM-Microbiology and Immun
Offered by: Microbiology & Immunology

MIMM 211 Introductory Microbiology.
(3) (Fall) (3 hours of lecture) (Corequisite: BIOL 200) A general treatment of microbiology bearing specifically on the biological properties of microorganisms. Emphasis will be on procaryotic cells. Basic principles of immunology and microbial genetics are also introduced.

MIMM 212 Laboratory in Microbiology.
(2) (Fall) (3 hours laboratory, 0.5 hour lecture, 1 hour follow-up) (Corequisite: MIMM 211) This laboratory course is designed to complement MIMM 211. Sessions introduce general techniques peculiar to the handling of microorganisms.

MIMM 314 Immunology.
(3) (Winter) (3 hours of lecture) (Prerequisite: BIOL 200 and BIOL 201 or BIOC 212) An introduction to the immune system, antigens, antibodies and lymphocytes. The course will cover the cellular and molecular basis of lymphocyte development and mechanisms of lymphocyte activation in immune responses.

MIMM 322 Microbial Physiology.
(3) (Fall) (3 hours of lecture) (Prerequisite: MIMM 211) An introduction to the composition and structure of microbial cells, the biochemical activities associated with cellular metabolism and how these activities are regulated and coordinated. The course will have a molecular and genetic approach to the study of microbial physiology.

MIMM 324 Fundamental Virology.
(3) (Fall) (3 hours of lecture) (Prerequisites: MIMM 211, BIOL 200, BIOL 201 or BIOC 212) A study of the fundamental properties of viruses and their interactions with host cells. Bacteriophages, DNA- and RNA-containing animal viruses, and retroviruses are covered. Emphasis will be on phenomena occurring at the molecular level and on the regulated control of gene expression in virus-infected cells.

MIMM 386D1 (3), MIMM 386D2 (3) Laboratory in Microbiology and Immunology.
(Fall) (1 hour lecture, 4 hours laboratory, 1 hour follow-up) (Prerequisites: MIMM 211, MIMM 212. Corequisites: MIMM 314, MIMM 323, MIMM 324) (Students must register for both MIMM 386D1 and MIMM 386D2.) (No credit will be given for this course unless both MIMM 386D1 and MIMM 386D2 are successfully completed in consecutive terms) Introduction to microbiological and immunological research and technology, including bacterial classification, bacterial and viral genetics, molecular genetics, and cell and molecular immunological techniques.

MIMM 387 Applied Microbiology and Immunology.
(3) (Winter) (Prerequisite: MIMM 211) The ability to select and manipulate genetic material has lead to unprecedented interest in the industrial applications of procaryotic and eucaryotic cells. Beginning in the 1970s the introduction of and subsequent refinements to recombinant DNA technology and hybridoma technology transformed the horizons of the biopharmaceutical world. This course will highlight the important events that link basic research to clinical/commercial application of new drugs and chemicals.

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Denotes courses not offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
Denotes courses not offered by the Faculty of Education which, if appropriate to the student's program, may be included in the academic concentration.
MIMM 396 Undergraduate Research Project in Microbiology.
(3) (Restrictions: This course cannot be taken under the S/U option. Departmental permission required. Students cannot be supervised by the same instructor for two 396 Science courses. Open to students in programs offered by the Faculty of Science only.) (Note: Enrolment may be limited. Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects. Some projects may be accessible to students in other disciplines. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) Independent research project with a final written report.

MIMM 397 Undergraduate Research Project in Immunology.
(3) (Prerequisite: Departmental permission required.) (Restriction: Open to students in programs offered by the Faculty of Science.) (This course cannot be taken under the S/U option.) (Students cannot be supervised by the same instructor for MIM 396 for 397 Science courses.) (Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects. Some projects may be accessible to students in other disciplines. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) Independent research project with a final written report.

MIMM 413 Parasitology.
(3) (Winter) (Prerequisite: MIMM 314 or equivalent - ANAT 261 is strongly recommended) A study of the biology, immunological aspects of host-parasite interactions, pathogenicity, epidemiology and molecular biological aspects of selected parasites of medical importance. Laboratory will consist of a lecture on techniques, demonstrations and practical work.

MIMM 414 Advanced Immunology.
(3) (Fall) (3 hour lecture) (Prerequisite: MIMM 314) An advanced course serving as a logical extension of MIMM 314. The course will integrate molecular, cellular and biochemical events involved in the ontogeny of the lymphoid system and its activation in the immune response. The course will provide the student with an up-to-date understanding of a rapidly moving field.

MIMM 465 Bacterial Pathogenesis.
(3) (Fall) (3 hours of lecture) (Prerequisites: MIMM 211, MIMM 314, MIMM 323, or the permission of the instructor) Organized by the McGill Centre for the Study of Host Resistance. This course focuses on the interplay of the host and the pathogen. The cellular and molecular basis of the host defense mechanism against infections will be considered in relationship to the virulence factors and evasion strategies used by bacteria to cause disease.

MIMM 466 Viral Pathogenesis.
(3) (Winter) (3 hours of lecture) (Prerequisites: MIMM 211, MIMM 314, MIMM 324, MIMM 314) A study of the biological and molecular aspects of viral pathogenesis with emphasis on the human pathogenic viruses including the retroviruses HIV and HTLV-1; herpes viruses; papilloma viruses; hepatitis viruses; and new emerging human viral diseases. These viruses will be discussed in terms of virus multiplication, gene expression virus-induced cytopathic effects and host immune response to infection.

MIMM 498 Library Research Project in Immunology.
(1) (Prerequisite(s): MIMM 314, MIMM 323, MIMM 324 and MIMM 386.) (Restriction: This course is intended for final year Microbiology and Immunology students only.) Supervised exploration of the current scientific literature on an assigned topic of an advanced nature within the area of Immunology.

MIMM 499 Library Research Project in Microbiology.
(1) (Prerequisites: MIMM 314, MIMM 323, MIMM 324 and MIMM 386.) (Restriction: Open only to final year Microbiology and Immunology students.) Supervised exploration of the current scientific literature on an assigned topic of an advanced nature within the general areas of bacteriology, virology, or parasitology.

MIMM 501D1 (6), MIMM 501D2 (6) Honours Research Project in Immunology.
(Required CGPA: 3.50 or higher) (An information meeting about the course is held annually in January for students who intend to apply for registration.) (Restriction(s): Not open to students who have taken or are taking MIMM 502D1/D2. Open to U3 Honours students and Majors students.) (Students must register for both MIMM 501D1 and MIMM 501D2.) (No credit will be given for this course unless both MIMM 501D1 and MIMM 501D2 are successfully completed in consecutive terms.) Presentation of students’ research findings in a seminar and a final written report.

MIMM 502D1 (6), MIMM 502D2 (6) Honours Research Project in Microbiology.
(Fall) (More than 18 hours per week for an independent research project) (Students must register for both MIMM 502D1 and MIMM 502D2) (No credit will be given for this course unless both MIMM 502D1 and MIMM 502D2 are successfully completed in consecutive terms) (An information meeting about the course is held annually in January for students who intend to apply for registration.) (Restriction: U3 Honours students and Majors students are eligible. Required CGPA: 3.50 or higher) Presentation of students’ research findings in a seminar and a final written report.

MIMM 509 Inflammatory Processes.
(3) (Winter) (3 hours of seminar) (Prerequisite: MIMM 314.) (Corequisite: PHGY 513 or MIMM 414) (This course will be given in conjunction with the Division of Experimental Medicine) This course concentrates on the non-specific aspects of the immune response, an area which is not adequately covered by the other immunology courses presented at the university. Interactions between guest researchers (from McGill and other universities) and students will be furthered.

NEUR-Neurology and Neurosurgery
Offered by: Neurology and Neurosurgery

NEUR 310 Cellular Neurobiology.
(3) (Winter) (2 lectures each week) (Prerequisites or Corequisites: BIOL 201, or PHGY 209, or PHGY 210; and one of ANAT 321, ANAT 322, BIOL 306, PHGY 311.) A survey of the functional organization of nerve cells, signalling in the nervous system, and principles of neural development. Topics include cell polarity, neurotransmitters, neurotrophins, receptors and second messengers, cell lineage, guidance of axon outgrowth, and nerve regeneration. Emphasis will be placed on analysis of neurons at the molecular level.

NEUR 507 Topics in Radionuclide Imaging.
(3) (Fall) (Restriction: Not open to students who have taken NEUR 607.) The course deals with neuroreceptor and oncologic imaging and imaging of cerebral bloodflow and metabolism. The role of radiochemistry and physics will be demonstrated in the context of clinical and research applications. Understanding how radiochemistry and physics intermingle with the medical aspects of radiotracer development will result in a deeper insight into the complex pathways of tracer design and the methods necessary to properly interpret the data obtained.

* * NEUR 550 Free Radical Biomedicine.
(3) (Winter) (Prerequisite: BIOL 200, BIOL 201, BIOC 311, BIOC 312, PHGY 209, PHGY 210 or permission of instructor.) An interdisciplinary course on the biochemistry and cellular/molecular biology of free radicals, transition metals, oxidative stress and antioxidants and their roles in health and disease.
NEUR 560 History of Neuroscience.
(3) (Fall) (Prerequisite: Permission of the instructor.) A historical survey of neuroscience, from antiquity to the major discoveries of the 20th century. Conceptual and technical advances having led to our current understanding of brain function and dysfunctions will be discussed. Particular attention will be given to sensory systems and cognitive processes.

NSCI-Neuroscience
Offered by: Psychology, Biology, Physiology

NSCI 200 Introduction to Neuroscience 1.
(3) (Fall) (Prerequisites: BIOL 112, CHEM 110, CHEM 120, PHYS 101 or PHYS 131, and PHYS 102 or PHYS 142. Pre- /co-requisite BIOL 200, CHEM 212 or permission of instructor.) (Restrictions: Not open to students who are taking or have taken PHGY 209.) An introduction to how nerve cells generate action potentials, communicate with one another at synapses, develop synaptic connections, early brain development, and the construction of specific neural circuits.

NSCI 201 Introduction to Neuroscience 2.
(3) (Winter) (Prerequisite: NSCI 200 or PSYC 211 or permission of instructor.) (Restriction: Open to students in the Major Neuroscience Program) An introduction to ethical issues arising from basic and clinical neuroscience. Overview of therapeutic, diagnostic, and research interventions in mental and neurological disorders, and their implications on society.

NSCI 396 Undergraduate Research Project.
(3) (Prerequisites: At least one term of undergraduate studies, a CGPA of at least 3.0, or permission of instructor to waive these requirements. A project proposal form must be completed by the student and instructor and approved by the unit head or his/her delegate before the start of the term. Instructors will list project-specific prerequisites with the project description.) (Restrictions: This course cannot be taken under the S/U option. Coordinator's permission required. Students cannot be supervised by the same instructor for two 396 Science courses. Open to students in programs offered by the Faculty of Science only.) (Note: Enrolment may be limited. Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects. Some projects may be accessible to students in other disciplines. See www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) Independent research project with a final written report.

NSCI 400D1 (0.5), NSCI 400D2 (0.5) Neuroscience Seminar.
(Fall/Winter) (Students will demonstrate their understanding of neuroscience by writing critical analyses of selected published papers and research seminars.) (Prerequisite: NSCI 200, 201, and 300) (Restriction: Open to students in their final year of a B.Sc. Major Neuroscience Program) Analysis of current research in neuroscience.

NSCI 400N1 (0.5), NSCI 400N2 (0.5) Neuroscience Seminar.
(Winter/Fall) (Students will demonstrate their understanding of neuroscience by writing critical analyses of selected published papers and research seminars.) (Prerequisite: NSCI 200, 201, and 300) (Restriction: Open to students in their final year of a B.Sc. Major Neuroscience Program) (Students must also register for NSCI 400N2) (No credit will be given for this course unless both NSCI 400N1 and NSCI 400N2 are successfully completed in a twelve month period) Analysis of current research in neuroscience.

NSCI 410 Independent Research 1.
(6) (Prerequisites: NSCI 200 and 201) (Restrictions: Only open to students registered in the B.Sc. Neuroscience Major. Not open to students who have taken or are taking NSCI 420D1 & D2.) Independent laboratory research in neuroscience.

NSCI 410D1 (3), NSCI 410D2 (3) Independent Research 1.
(Prerequisites: NSCI 200 and 201) (Restrictions: Only open to students registered in the B.Sc. Neuroscience Major. Not open to students who have taken or are taking NSCI 420D1 & D2.) (Students must register for both NSCI 410D1 and NSCI 410D2.) (NSCI 410D1 and NSCI 410D2 together are equivalent to NSCI 410.) (No credit will be given for this course unless both NSCI 410D1 and NSCI 410D2 are successfully completed in consecutive terms) Independent laboratory research in neuroscience.

NSCI 420D1 (4.5), NSCI 420D2 (4.5) Independent Research 2.
(Prerequisites: NSCI 200 and NSCI 201) (Restrictions: Only open to students registered in the B.Sc. Neuroscience Major. Not open to students who have taken or are taking NSCI 410.) (Students must register for both NSCI 420D1 and NSCI 420D2.) (No credit will be given for this course unless both NSCI 420D1 and NSCI 420D2 are successfully completed in consecutive terms.) Independent laboratory research in neuroscience.

NSCI 420N1 (4.5), NSCI 420N2 (4.5) Independent Research 2.
(Prerequisites: NSCI 200 and NSCI 201) (Restrictions: Only open to students registered in the B.Sc. Neuroscience Major. Not open to students who have taken or are taking NSCI 410.) (Students must register for both NSCI 420N1 and NSCI 420N2.) (NSCI 420N1 and NSCI 420N2 together are equivalent to NSCI 420.) (No credit will be given for this course unless both NSCI 420N1 and NSCI 420N2 are successfully completed in a twelve month period) Independent laboratory research in neuroscience.

PATH-Pathology
Offered by: Pathology

PATH 300 Human Disease.
(3) (Winter) (Prerequisites: BIOL 200, BIOL 201 or BI0C 212, PHGY 209. Pre- /co-requisite: PHGY 210) Provides a fundamental understanding of the diseases prevalent in North America, for upper level students in the biological sciences. Includes: general responses of cells and organ systems to injury; assessment of individual diseases by relating the causes, symptoms, diagnosis, treatment and prevention to the primary biological abnormalities in each disorder.

PHAR-Pharmacology and Therapeutics
Offered by: Pharmacology and Therapeutics

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.
PHAR 300 Drug Action.  
(3) (Fall) (Prerequisites: BIOL 200, PHYG 209, PHYG 210 and one of BIOL 201 or ANAT/BIOC 212 or permission of instructor.) Principles of pharmacology and toxicology. Frequently encountered drugs will be used as a focus to illustrate sites and mechanisms of action, distribution, metabolism, elimination and adverse side effects.

PHAR 301 Drugs and Disease.  
(3) (Winter) (Prerequisite: PHAR 300 or permission of instructor.) This course further explores the basic principles of pharmacology as illustrated by drugs used in the treatment of disease. Emphasis is placed on drugs used for diseases prevalent in North America.

PHAR 303 Principles of Toxicology.  
(3) (Winter) (Prerequisites: BIOL 200, BIOL 201 or BIOC 212, PHYG 209 and PHYG 210) Fundamental mechanisms by which toxic compounds damage a biological system (organelle, cell, organ, organism, ecosystem). Detection and quantification of toxicity and risk/benefit analysis are considered. Selected agents of current risk to human health or the environment are evaluated in depth.

PHAR 503 Drug Design and Development 1.  
(3) (Fall) (Prerequisites: PHAR 301 and PHAR 303; or permission of instructor.) Chemistry, mechanisms of action and steps in drug development.

PHAR 504 Drug Design and Development 2.  
(3) (Winter) (Prerequisites: PHAR 503, or permission of coordinator) (Restriction: U3 and graduate students. Students can register only with permission of coordinator.) Possible untoward effects and reasons for drug (dis)approval.

PHAR 558 Pharmacology Selected Topics.  
(3) (Prerequisite: PHAR 562 or permission of the instructor.) (Corequisite: PHAR 563 or permission of the instructor.) Changing nature of selected drug targets in light of advances in studying proteins in their native cellular milieu, in the context of intact tissues, organs and whole animals, highlighting several conceptual advances in pharmacological theory with bearing on how drug targets are viewed and characterized.

PHAR 562 General Pharmacology 1.  
(3) (Fall) (Prerequisite: PHAR 301.) (Restriction: Open to U3 students in the minor, major or honors program in Pharmacology, or with permission of instructor.) Topics in pharmacology with an emphasis on molecular aspects and the nervous system; topics include molecular mechanisms of drug-action, cellular targets and rationale for therapeutics.

PHAR 563 General Pharmacology 2.  
(3) (Winter) (Prerequisite: PHAR 301.) (Restriction: Open to U3 students in the minor, major or honors program in Pharmacology, or with permission of instructor.) Selected topics in pharmacology of the endocrine, metabolic, and cardiovascular systems. Additional topics include: pharmacogenetics/pharmacogenomics, chronopharmacology, molecular structure in pharmacology, epigenetic targets in cancer chemotherapy, and stem cell therapies.

PHAR 599 Pharmacology Research Project.  
(6) (Minimum of 18 hours/week to be spent in the lab and/or library.) (Pre-/Co-requisite: PHAR 562 and PHAR 563.) (Restrictions: U3 students with permission of instructors; students should consult instructors 3 - 4 weeks before registration.) Mechanisms involved in different pathologies and drug actions.

PHAR 599D1 (3), PHAR 599D2 (3) Pharmacology Research Project.  
(Fall) (Minimum of 9 hours/week to be spent in the lab and/or library.) (Pre-/Co-requisite: PHAR 562 and PHAR 563.) (Restriction: U3 students with permission of instructors; students should consult instructors 3 - 4 weeks before registration.) (Students must register for both PHAR 599D1 and PHAR 599D2.) (No credit will be given for this course unless both PHAR 599D1 and PHAR 599D2 are successfully completed in consecutive terms) (PHAR 599D1 and PHAR 599D2 together are equivalent to PHAR 599) (Please see regulations concerning Project Courses) Mechanisms involved in different pathologies and drug actions.

PHARY-Physiology

PHGY 199 FYS: History of Genetic Engineering.  
(3) (Winter) (3 hours seminar per week) (Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) (Maximum 20) The history of molecular biology and genetic engineering will be surveyed through a series of essays and reviews written by historic figures and prominent scientists of today. The course will trace key players and principal advances in our understanding of the gene, its manipulation, and the future of genetic engineering.

PHGY 201 Human Physiology: Control Systems.  
(3) (Fall) (3 hours lecture weekly) (Prerequisites: collegial courses in biology or anatomy, and in chemistry and physics; with CHEM 212 or equivalent, as a pre-/co-requisite) (Restriction: For students in Physical and Occupational Therapy, Nursing, and others with permission of the course coordinator) (Restriction: Not open to students who have taken PHGY 209) Physiology of body fluids, blood, nerve and muscle, peripheral nerves, central nervous system, special senses, autonomic nervous system, defense mechanisms.

PHGY 202 Human Physiology: Body Functions.  
(3) (Winter) (3 hours lecture weekly) (Prerequisites: collegial courses in biology or anatomy and in chemistry and physics; with CHEM 212 or equivalent, as a pre-/co-requisite) (Restriction: For students in Physical and Occupational Therapy, Nursing, Education, and others with permission of the course coordinator) (Restriction: Not open to students who have taken PHGY 211 or PHGY 204 or who are taking and who have taken NSCI 200.) (Restriction: For students in the Faculty of Science, and other students by permission of the instructor) Physiology of body fluids, blood, body defense mechanisms, muscle, peripheral, central, and autonomic nervous systems.

PHGY 210 Mammalian Physiology 1.  
(3) (Fall) (3 hours lectures weekly) (Prerequisites: BIOL 112, CHEM 110, CHEM 120, PHYS 101 or PHYS 131, and PHYS 102 or PHYS 142. Pre-/co-requisites: BIOL 200, CHEM 212 or equivalent.) (Restriction: Not open to students who have taken PHGY 211 or PHGY 204 or who are taking and who have taken NSCI 200.) (Restriction: For students in the Faculty of Science, and other students by permission of the instructor) (Although PHGY 210 may be taken without the prior passing of PHGY 209, students should note that they may have some initial difficulties because of lack of familiarity with some basic concepts introduced in PHGY 209) Physiology of cardiovascular, respiratory, digestive, endocrine and renal systems.

PHGY 212 Introductory Physiology Laboratory 1.  
(1) (One 3-hour lab and one 1-hour lecture every second week.) (Corequisite: PHGY 209.) (Restrictions: Required for Physiology students enrolled in PHGY 209. Open to BA &Sc. students and to others by permission of the instructor. Not open to students who have taken PHGY 212D1/D2.) (Note: For students in a Physiology program, PHGY 212 should be taken concurrently with PHGY 209.) Exercises illustrating fundamental principles in physiology: Biological Signals Acquisitions, Blood, Immunology. Neurophysiology, Neuromuscular Physiology.
PHGY 213 Introductory Physiology Laboratory 2.
(1) (One 3-hour lab and 1-hour lecture every second week.)
(Prerequisite: PHGY 212) (Corequisite: PHGY 210.)
(Replacements: Required for Physiology students enrolled in PHGY 210. Open to BA & Sc. students and to others by permission of the instructor. Not open to students who have taken PHGY 212D1/2D.) (Note: For students in a Physiology program, PHGY 213 should be taken concurrently with PHGY 210.)
Exercises illustrating fundamental principles in physiology: Central Nervous System, Cardiovascular, Respiratory, Exercise Physiology, Molecular Endocrinology.

PHGY 311 Channels, Synapses & Hormones.
(3) (Fall) (3 hours of lectures per week; 1-3 hours optional lab/demonstration/tutorial) (prerequisites: PHGY 209 or permission of the instructor). In-depth presentation of experimental results and hypotheses on cellular communication in the nervous system and the endocrine system.

PHGY 312 Respiratory, Renal, & Cardiovascular Physiology.
(3) (Winter) (3 hours of lectures per week; 1-3 hours optional lab/demonstration/tutorial) (prerequisites: PHGY 210 or equivalent.) In-depth presentation of experimental results and hypotheses underlying our current understanding of topics in renal, respiratory and cardiovascular functions explored beyond the introductory level.

PHGY 313 Blood, Gastrointestinal, & Immune Systems Physiology.
(3) (Winter) (3 hours of lectures per week; 1-3 hours optional lab/demonstration/tutorial) (prerequisites: PHGY 210 or equivalent.) In-depth presentation of experimental results and hypotheses underlying our current understanding of topics in immunology, blood and fluids, and gastrointestinal physiology.

PHGY 314 Integrative Neuroscience.
(3) (Fall) (3 hours of lectures per week) (prerequisites: PHGY 209) In depth presentation of experimental results and hypotheses underlying our current understanding of how single neurons and ensembles of neurons encode sensory information, generate movement, and control cognitive functions such as emotion, learning, and memory, during voluntary behaviours.

PHGY 351 Research Techniques: Physiology.
(3) (Winter) (2 hour lecture and 3 hour lab weekly) (prerequisites: PHGY 209, PHGY 210 and PHGY 311.) (corequisites: PHGY 312 and PHGY 313.) (restriction: Honours Physiology students) Provides an overview of common research methods in Physiology, including critical analysis and practical experience with some of the methods. Topics include research ethics of animal experimentation, data analysis, membrane biophysics, radiomunnoassay, ion sensitive dyes, immunocytochemistry, localization techniques, protein transport, cell sorting and molecular biology.

PHGY 359D1 (0.5), PHGY 359D2 (0.5) Tutorial in Physiology.
(Fall) (prerequisites: PHGY 209 and PHGY 210 or equivalent.) (corequisites: PHGY 311, PHGY 312 and PHGY 313.) (restriction: enrolment restricted to Honours Physiology students) (students must register for both PHGY 359D1 and PHGY 359D2.) (no credit will be given for this course unless both PHGY 359D1 and PHGY 359D2 are successfully completed in consecutive terms) The course consists of regularly scheduled meetings between each individual student and a chosen staff member, to consider current problems in biomedical research and to develop background for a research project to be carried out in U3. Brief written summaries of each meeting are required.

PHGY 396 Undergraduate Research Project.
(3) (restrictions: this course cannot be taken under the S/U option. Departmental approval required) Students cannot be supervised by the same instructor for two 396 Science courses. Open to students in programs offered by the Faculty of Science only.) (note: enrolment may be limited. Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects. Some projects may be accessible to students in other disciplines. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) Independent research project with a final written report.

PHGY 419D1 (4.5), PHGY 419D2 (4.5) Immunology Research Project.
(Fall) (15 hours lab/week) (restriction: enrolment restricted to U3 Interdepartmental Honours Immunology students or permission of instructors) (students must register for both PHGY 419D1 and PHGY 419D2.) (no credit will be given for this course unless both PHGY 419D1 and PHGY 419D2 are successfully completed in consecutive terms) Individual research projects in immunology under the guidance of staff members in the three participating departments: Physiology, Biochemistry, and Microbiology and Immunology.

PHGY 425 Analyzing Physiological Systems.
(3) (prerequisite: PHGY 311, PHGY 314, BIOL 200 or permission from instructor.) (note: enrolment limited to 20 students.) An introduction to quantitative analysis of physiological data, both to the mode of thinking and to a set of tools that allows accurate predictions of biological systems. Examples will range from oscillating genetic networks to understanding higher brain function. Modelling and data analysis through examples and exercises will be emphasized.

PHGY 451 Advanced Neurophysiology.
(3) (fall) (3 hours lecture) (prerequisite: PHGY 311 or equivalent) (restriction: departmental approval required) Topics of current interest in neurophysiology including the development of neurons and synapses, physiology of ionic channels, presynaptic and postsynaptic events in synaptic transmission and neuronal interactions in CNS function.

PHGY 459D1 (3), PHGY 459D2 (3) Physiology Seminar.
(Fall) (2 hours seminar) (prerequisite: permission of instructors) (required course for U3 Honours students) (students must register for both PHGY 459D1 and PHGY 459D2) (no credit will be given for this course unless both PHGY 459D1 and PHGY 459D2 are successfully completed in consecutive terms) Discussion of topics in mammalian, cellular and molecular physiology. Students will be required to write one essay and make at least one oral presentation per term. A final course essay is required.

PHGY 461D1 (4.5), PHGY 461D2 (4.5) Experimental Physiology.
(Fall) (restriction: departmental approval required) (restriction: this course is a requirement for U3 students in the honours physiology program, the major program in physiology and mathematics, and the major program in physiology and physics, and is open to a limited number of other U3 physiology students) (students must register for both PHGY 461D1 and PHGY 461D2) (no credit will be given for this course unless both PHGY 461D1 and PHGY 461D2 are successfully completed in consecutive terms) Individual project work under the supervision of departmental staff members.

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PHGY 502 Exercise Physiology.  
(3) (Winter) (Prerequisites: PHGY 311, PHGY 312, and PHGY 313) Behaviour of physiological processes in response to physical effort, including structural basis of muscular contraction, thermoregulation during exercise, mechanics and energetics of muscle contraction, fuel utilization, fatigue, physiological adjustments during exercise and influence of training.

PHGY 508 Advanced Renal Physiology.  
(3) (Fall) (Prerequisite (Undergraduate): PHGY 312 or the equivalent) (Restriction: Open to advanced undergraduate and graduate students) Offered in conjunction with the Department of Medicine. Lectures and seminars will cover advanced concepts in selected areas of kidney physiology (glomerular and tubular function) as well as membrane and epithelial transport. Students will be expected to critically discuss selected experimental papers.

PHGY 513 Cellular Immunology.  
(3) (Winter) (3 hours lectures plus term paper) (Prerequisite: MIBM 314, or permission of the instructor) This course deals with cellular interactions, regulation and effector mechanisms of the normal immune response in relation to diseases and pathogenic processes. It is taught at an advanced level.

PHGY 515 Physiology of Blood 1.  
(3) (Fall) (2 hours lecture plus 1 hour seminar weekly) (Prerequisite: PHGY 313 or PHGY 312 or permission of the instructor) Study of the cell and molecular physiology of hematosis and its pathophysiology (bleeding and thrombosis). Emphases on molecular mechanisms regulating clot formation, fibrinolysis, and cell adhesion/aggereation. Experimental approaches and specific clinical disorders will be analyzed. Weekly discussions, and a major term paper.

PHGY 516 Physiology of Blood 2.  
(3) (Winter) (2 hours lecture plus 1 hour seminar weekly) Bone marrow hematopoiesis, with emphasis on regulation of stem cell proliferation and differentiation along hematopoietic pathways. Formation and differentiation of red and white blood cells and some of the diseases associated with hematopoiesis will be covered. Emphasis will be given to the molecular mechanisms involved in the normal and pathological conditions.

*PHGY 517 Artificial Internal Organs.  
(3) (Winter) (Prerequisite (Undergraduate): permission of instructors) Physiological, bioengineering, chemical and clinical aspects of artificial organs including basic principles and physiopathology of organ failure. Examples: oxygenator, cardiac support, vascular substitutes, cardiac pacemaker, biomaterials and tissue engineering, biocompatibility.

PHGY 518 Artificial Cells.  
(3) (Fall) (Prerequisite (Undergraduate): permission of instructors) Physiology, biotechnology, chemistry and biomedical application of artificial cells, blood substitutes, immobilized enzymes and cells, hemopuffusion, artificial kidneys, and drug delivery systems. PHGY 517 and PHGY 518 when taken together, will give a complete picture of this field. However, the student can select one of these.

*PHGY 520 Ion Channels.  
(3) (Winter) (Offered in even numbered years) (1 1/2 hour lecture, 1 1/2 hour seminar) (Prerequisite: PHGY 311) (Priority to Graduate and Honours students; others by permission of instructors.) A discussion of the principal theories and interesting new developments in the study of ion channels. Based on a textbook, computer exercises and critical reading and presentation of research papers. Topics include: Properties of voltage- and ligand-gated channels, single channel analysis, structure and function of ion channels.

PHGY 524 Chronobiology.  
(3) (Prerequisites: PHGY 209 and PHGY 210 (or NSCI 200 and NSCI 201), and a relevant 300-level course (PHGY 311, or PHGY 314, or PSYC 318, or BIOC 311, or other, with permission of course coordinator). (Restriction: Course for senior undergraduate (U3) and graduate students) An introduction to the field of chronobiology. The aim is to provide basic instruction on different types of biological rhythms, with particular focus on circadian rhythms.

PHGY 531 Topics in Applied Immunology.  
(3) (Winter) (Restriction: Permission of the instructor. U3 InterDept. Honours Immunology students and graduate students with strong immunology background i.e. PHGY 513 and BIOC 503) Seminar format course in which experts in immunologic mechanisms of resistance against a variety of infectious diseases, including AIDS, malaria, and tuberculosis oversee student moderators in their presentation of recent scientific literature in the field.

PHGY 550 Molecular Physiology of Bone.  
(3) (Fall) (1 hour lecture, 2 hours seminar per week) (Prerequisites: PHGY 311, and BIOL 202 or equivalent) (Restriction: U3 Physiology students, and graduate students in biomedical departments; others by permission of the instructor) Students will develop a working knowledge of cartilage and bone. Discussion topics will include: molecular and cellular environment of bone; heritable and acquired skeletal defects; research models used to study metabolic bone disease.

PHGY 552 Cellular and Molecular Physiology.  
(3) (Winter) (1 hour lecture, 2 hours seminar weekly) (Prerequisite: PHGY 311) (Preference will be given to Physiology Honours and Graduate students) Discussions of recent significant advances in our understanding of the gene products involved in diverse cellular signalling pathways. Topics will include cell-surface hormone receptors, nuclear steroid hormone receptors, and ion channels and transporters. Students will present and critically evaluate experimental approaches, results and interpretations of selected research publications.

PHGY 556 Topics in Systems Neuroscience.  
(3) (Winter) (Restriction: Permission of the instructor required.) (Restriction: Not open to students who have taken PHGY 456) Topics of current interest in systems neurophysiology and behavioural neuroscience including: the neural representation of sensory information and motor behaviours, models of sensory motor integration, and the computational analysis of problems in motor control and perception. Students will be expected to present and critically discuss journal articles in class.

PHGY 560 Light Microscopy-Life Science.  
(3) (Winter) (Prerequisites: BIOL 301 or permission of instructors) Introduction to optics, light microscopy imaging and data analysis for life scientists.

PHYS-Physics

Offered by: Physics

PHYS 101 Introductory Physics - Mechanics.  
(4) (Fall) (3 hours lectures; 2 hours laboratory; tutorial sessions) (Restriction: Not open to students taking or having taken PHYS 131, CEGEP objective 00UR or equivalent) (Laboratory sections have limited enrolment) An introductory course in physics without calculus, covering mechanics (kinematics, dynamics, energy, and rotational motion), oscillations and waves, sound, light, and geometrical optics.

PHYS 102 Introductory Physics - Electromagnetism.  
(4) (Winter) (3 hours lectures; 2 hours laboratory; tutorial sessions) (Prerequisite: PHYS 101.) (Corequisite: MATH 139 or higher level calculus course.) (Restriction: Not open to students taking or having taken PHYS 142, CEGEP objective 00UR or equivalent) (Laboratory sections have limited enrolment) Electric field and potential. D.C. circuits and measurements. Capacitance. Magnetic field and induction. A.C. circuits Semiconductor devices and their application. Electromagnetic waves.
PHYS 117 Mechanics Laboratory. (1) (Fall) (Prerequisite: Lecture component of PHYS 131 or equivalent) (Restriction: Not open to students who have taken or are taking PHYS 131) The laboratory component of PHYS 131.

PHYS 118 E & M Laboratory. (1) (Winter) (Prerequisite: Lecture component of PHYS 142 or equivalent) (Restriction: Not open to students who have taken or are taking PHYS 142) The laboratory component of PHYS 142.

PHYS 131 Mechanics and Waves. (4) (Fall) (3 hours lectures; 1 hour tutorial, 3 hours laboratory in alternate weeks; tutorial sessions) (Corequisite: PHYS 131.) (Restriction: Not open to students taking or having taken PHYS 101, CEGEP objective 00UR or equivalent) (Laboratory sections have limited enrolment) The basic laws and principles of Newtonian mechanics; oscillations and waves.

PHYS 142 Electromagnetism and Optics. (4) (Winter) (3 hours lectures, 3 hours laboratory in alternate weeks; tutorial sessions) (Prerequisite: PHYS 131.) (Corequisite: MATH 141 or higher level calculus course.) (Restriction: Not open to students taking or having taken PHYS 102, CEGEP objective 00UR or equivalent) (Laboratory sections have limited enrolment) The basic laws of electricity and magnetism; geometrical and physical optics.

PHYS 180 Space, Time and Matter. (3) (Fall) (3 hours lectures) (Restrictions: Not open to students in a Physics program. Not open to students who have taken PHYS 200.) A nonmathematical, conceptual look at physics, beginning with the idea of space and time, continuing with the historical development of Newtonian mechanics of celestial motion, electricity and magnetism, ether and light, Einstein's special and general theories of relativity, quantum mechanics, matter and antimatter, cosmology and the big bang.

PHYS 181 Everyday Physics. (3) (Fall) (Note: The course will be divided into thirteen weeks with a different topic for each week throughout the semester.) (Restriction: Not open to students who have taken PHYS 202.) The day-to-day physics behind the materials and phenomena around us. Demonstrations of the intriguing properties of materials and the simple physical theories explaining them.

PHYS 182 Our Evolving Universe. (3) (Fall) (Restriction: Not open to students in a Physics program. Not open to students who have taken PHYS 204 or PHYS 205.) An elementary course on astronomy and astrophysics. Positional astronomy and finding your way about the sky. Our evolving picture of the universe. Properties and origins of the solar system. The Big Bang and modern cosmology.

PHYS 183 The Milky Way Inside and Out. (3) (Winter) (Restriction: Not open to students in a Physics program. Not open to students who have taken PHYS 204 or PHYS 206.) An elementary course on astronomy. Star origins and star formation, supernovae, white dwarfs, neutron stars, and black holes. Galaxies, their structure and their interactions. Stellar clusters, the interstellar medium. Galactic classification and galaxy evolution.

PHYS 184 Energy and the Environment. (3) (Restriction: Not open to students who have taken PHYS 228.) Energy fundamentals, generation of electricity, heat engines, fossil fuel production and consumption, local and global effects, economic impact, transportation, and pollution and environmental impact of energy use. Non-renewable energy sources (fossil fuels, nuclear) and renewable sources (solar, wind, hydro, geothermal).

PHYS 214 Introductory Astrophysics. (3) (Fall) (Prerequisite: CEGEP Physics or PHYS 142.) An introduction to astrophysics with emphasis placed on methods of observation and current models. Stellar radiation and detectors, quasars, black holes. Galaxies, large scale structure of the universe, cosmology.

PHYS 224 Physics of Music. (3) (Fall) (3 hours lectures) (Designed for students in the Faculty of Music but suitable for students with an interest in music and its physical basis.) (Restriction: Not open to students who have taken PHYS 225) An introduction to the physics of music. Properties of sound and their perception as pitch, loudness, and timbre. Dissonance, consonance, and musical intervals and tuning. Physics of sound propagation and reflection. Resonance. Acoustic properties of pipes, strings, bars, and membranes, and sound production in wind, string, and percussion instruments. The human voice. Room reverberation and acoustics. Directional characteristics of sound sources.

PHYS 230 Dynamics of Simple Systems. (3) (Fall) (3 hours lectures) (Prerequisites: CEGEP Physics or PHYS 131.) (Corequisite: MATH 222) (Restriction: Not open to students taking or having passed PHYS 251) Translational motion under Newton's laws; forces, momentum, work-energy theorem. Special relativity; Lorentz transforms, relativistic mechanics, mass/energy equivalence. Topics in rotational dynamics. Noninertial frames.

PHYS 232 Heat and Waves. (3) (Winter) (3 hours lectures) (Prerequisites: CEGEP Physics or PHYS 142, and CEGEP chemistry or CHEM 120, and PHYS 230.) (Restriction: Not open to students taking or having passed PHYS 253) The laws of thermodynamics and their consequences. Thermodynamics of P-V-T systems and simple heat engines. Free, driven, and damped harmonic oscillators. Coupled systems and normal modes. Fourier methods. Wave motion and dispersion. The wave equation.

PHYS 241 Signal Processing. (3) (Winter) (2 hours lectures; 3 hours laboratory alternate weeks) (Prerequisites: CEGEP physics or PHYS 142.) Linear circuit elements, resonance, network theorems, diodes, transistors, amplifiers, feedback, integrated circuits.

PHYS 242 Electricity and Magnetism. (2) (Winter) (2 hours lectures) (Prerequisites: CEGEP Physics, MATH 222) Properties of electromagnetic fields, dipole and quadrupole fields and their interactions, chemical binding of molecules, electromagnetic properties of materials, Maxwell's equations and properties of electromagnetic waves, propagation of waves in media.

PHYS 251 Honours Classical Mechanics 1. (3) (Fall) (3 hours lectures) (Prerequisite: CEGEP physics or PHYS 131.) (Corequisite: MATH 222) (Restriction: Not open to students taking or having taken PHYS 230) Newton's laws, work energy, angular momentum. Harmonic oscillator, forced oscillations. Inertial forces, rotating frames. Central forces, centre of mass, planetary orbits, Kepler's laws.

PHYS 253 Thermal Physics. (3) (Fall) (3 hours lectures) (Prerequisites: CEGEP physics or PHYS 131, and CEGEP chemistry or CHEM 120.) (Corequisite: MATH 222) (Restriction: Not open to students taking or having taken PHYS 230) Energy, work, heat, first law. Temperature, entropy; second law. Absolute zero; third law. Equilibrium, equations of state, gases, liquids, solids, magnets; phase transitions.
PHYS 257 Experimental Methods 1.
(3) (Fall) (6 hours of laboratory and classroom work)
(Corequisite: PHYS 230 or PHYS 251) Introductory laboratory work and data analysis as related to mechanics, optics and thermodynamics. Introduction to computers as they are employed for laboratory work, for data analysis and for numerical computation. Previous experience with computers is an asset, but is not required.

PHYS 258 Experimental Methods 2.
(3) (Winter) (6 hours of laboratory and classroom work)
(Corequisite: PHYS 257) Advanced laboratory work and data analysis as related to mechanics, optics and thermodynamics. Computers will be employed routinely for data analysis and for numerical computation, and, particularly, to facilitate the use of Fourier methods.

PHYS 260 Modern Physics and Relativity.
(3) (Fall) (3 hours lectures)
(Corequisite: CEGEP physics or PHYS 142.) (Corequisite: MATH 222) History of special relativity; Lorentz transformations; kinematics and dynamics; transformation of electric and magnetic forces; introduction to topics in modern physics.

PHYS 271 Introduction to Quantum Physics.
(3) (Winter) (3-0-6) (Restriction: Not open to students who have taken or are taking BIOL 319) Introduction to quantum physics. The observed properties of atoms and radiation from atoms. Electron waves. The Schroedinger Equation in one dimension. Quantum mechanics of the hydrogen atom. Angular momentum and spin. Quantum mechanics of many electron systems. Basic ideas of electrons in solids and solid state physics.

PHYS 319 Introduction to Biophysics.
(3) (Prerequisites: PHYS 142; BIOL 112; MATH 141 or 151, or their equivalents; and one of the following: BIOL 201, ANAT/BIOC 212, PHYS 232, or PHYS 253; or permission of the instructor.) (Restriction: Not open to students who have taken or are taking BIOL 319) Introduction to biophysics: the investigation of the physical laws which apply to biological molecules and cells. Principles covered include Brownian motion, low Reynolds-number environments, forces relevant to cells and molecules, chemical potentials, and free energies; these principles are applied to enzymes as molecular machines, membranes, DNA, and RNA.

PHYS 328 Electronics.
(3) (Fall) (2 hours lectures; 3 hours laboratory) (Prerequisite: PHYS 241 or permission of instructor) Semiconductor devices, basic transistor circuits, operational amplifiers, combinatorial and sequential logic, integrated circuits, analogue to digital converters. The laboratory component covers design, construction and testing of basic electronic circuits.

PHYS 331 Topics in Classical Mechanics.
(3) (Winter) (3 hours lectures) (Prerequisite: PHYS 230) (Corequisite: MATH 315) (Restriction: Not open to students who have taken PHYS 451 or PHYS 351) Forced and damped oscillators, Newtonian mechanics in three dimensions, rotational motion, Lagrangian mechanics, small vibrations, normal modes. Introduction to Hamiltonian mechanics.

PHYS 333 Thermal and Statistical Physics.
(3) (Winter) (3 hours lectures) (Prerequisite: PHYS 232) (Restriction: Not open to students taking or having passed PHYS 362) Introductory equilibrium statistical mechanics. Quantum states, probabilities, ensemble averages. Entropy, temperature, Boltzmann factor, chemical potential. Photons and phonons. Fermi-Dirac and Bose-Einstein distributions; applications.

PHYS 334 Advanced Materials.
(3) (Fall) (Prerequisites: CHEM 110, CHEM 120 or CHEM 111, CHEM 121 and PHYS 101, PHYS 102 or PHYS 131, PHYS 142 or CEGEP Physics. or equivalent. Pre- or Co-requirement: one of CHEM 203, CHEM 204, CHEM 213, CHEM 214 or equivalent; or one of PHYS 230 and PHYS 232, or equivalent; or permission of instructor) (Restriction: Not open to students who have taken or are taking CHEM 334) The physicochemical properties of advanced materials. Topics discussed include photonics, information storage, 'smart' materials, biomaterials, clean energy materials, porous materials, and polymers.

PHYS 339 Measurements Laboratory in General Physics.
(3) (Winter) (6 hours) (Prerequisite: PHYS 241 or permission of instructor) Introduction to modern techniques of measurement. The use of computers in performing and analysing experiments. Data reduction, statistical methods, report writing. Extensive use of computers is made in this laboratory; therefore some familiarity with computers and computing is an advantage.

PHYS 340 Majors Electricity and Magnetism.
(3) (Fall) (3 hours lectures) (Prerequisites: MATH 248, MATH 314) Fundamentals of electric and magnetic fields in both integral and differential form.

PHYS 350 Honours Electricity and Magnetism.
(3) (Fall) (3 hours lectures) (Prerequisites: MATH 248, MATH 325) (Restriction: Honours students or permission of the instructor) (Restriction: Not open to students who have taken PHYS 340) Fundamentals of electric and magnetic fields in both integral and differential form.

PHYS 351 Honours Classical Mechanics 1.
(3) (Winter) (3 hours lectures) (Prerequisite: PHYS 251.) (Restriction: Not open to students who have taken PHYS 451) Rigid bodies, angular momentum, gyroscope, moment of inertia, principal axes, Euler's equations. Coupled oscillations and normal modes. Lagrangian mechanics and applications. Hamiltonian mechanics. Topics in advanced analytical mechanics.

PHYS 352 Honours Electromagnetic Waves.
(3) (Fall) (3 hours lectures) (Prerequisites: PHYS 340 or PHYS 242, Mathematics MATH 314, MATH 315) Maxwell's equations. The wave equation. The electromagnetic wave, reflection, refraction, polarization. Guided waves. Transmission lines and wave guides. Vector potential. Radiation. The elemental dipole; the half-wave dipole; vertical dipole; folded dipoles; Yagi antennas. Accelerating charged particles.

PHYS 357 Honours Quantum Physics 1.
(3) (Fall) (3 hours lectures) (Prerequisites: MATH 223 or equivalent, and one of PHYS 230, PHYS 251, or CIVE 281) (Restriction: Honours students or permission of the instructor) (Restriction: Not open to students having passed PHYS 446) Experimental basis for quantum mechanics; wave-packets; uncertainty principle. Hilbert space formalism. Schrodinger equation: eigenvalues and eigenvectors: applications to 1-d problems including the infinite and finite potential wells and the harmonic oscillator. Tunneling. Time independent perturbation theory.

PHYS 359 Honours Laboratory in Modern Physics 1.
(3) (Winter) (6 hours) (Corequisite: PHYS 457) Honours students or permission of instructor) Advanced level experiments in modern physics stressing quantum effects and some properties of condensed matter.

PHYS 362 Statistical Mechanics.
(3) (Winter) (3 hours lectures) (Prerequisites: MATH 248 or equivalents, PHYS 253.) (Restriction: Honours students, or permission of the instructor) (Restriction: Not open to students taking or having passed PHYS 333) Quantal states and ensemble averages. Fermi-Dirac, Bose-Einstein and Boltzmann distribution functions and their applications.

PHYS 396 Undergraduate Research Project.
(3) (Restrictions: This course cannot be taken under the S/U option. Departmental permission required. Students cannot be supervised by the same instructor for two 396 Science courses. Open to students in programs offered by the Faculty of Science only.) (Note: Enrolment may be limited. Students are advised to
start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects. Some projects may be accessible to students in other disciplines. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) Independent research project with a final written report.

** PHYS 413 Physical Basis of Physiology.**
(3) (Fall) (3 hours lectures) (Prerequisite: MATH 315, or MATH 325, and permission of the instructor) (Intended for Major or Honours students in Physics, Physiology, Physiology and Physics, or Mathematics and others with permission) Analytic and computer simulation techniques are used to examine the role of nonlinearities and time delays in determining the dynamic behaviour of physiological control systems and their relation to normal and pathophysiological states. Examples drawn from the control of respiration, cellular proliferation and differentiation, biochemical feedback networks, thermoregulatory mechanisms, and neural feedback.

** PHYS 432 Physics of Fluids.**
(3) (Winter) (3 hours lectures) (Prerequisites: PHYS 230, MATH 223, MATH 314, MATH 315) (Restriction: Not open to students who have taken PHYS 332.) The physical properties of fluids. The kinematics and dynamics of flow. The effects of viscosity and turbulence. Applications of fluid mechanics in biophysics, geophysics and engineering.

** PHYS 434 Optics.**
(3) (Winter) (3 hours lectures) (Prerequisite: PHYS 342 or PHYS 352, or permission of the instructor) Geometrical optics, wave optics, lasers, Fourier transform spectroscopy, holography, optical data processing, stellar interferometry.

** PHYS 436 Modern Physics.**
(3) (Winter) (3 hours lectures) (Prerequisite: PHYS 446) (Restriction: Not open to students in Honours Physics or in Joint Honours in Mathematics and Physics) One electron atoms, radiation, multielectron atoms, molecular bonds. Selected topics from condensed matter, nuclear and elementary particle physics.

** PHYS 439 Majors Laboratory in Modern Physics.**
(3) (Fall) (6 hours) (Prerequisite: PHYS 339.) (Corequisite: PHYS 446) (Restriction: Not open to students with credit in PHYS 359 except with permission of instructor) Advanced level experiments in modern physics stressing quantum effects and some properties of condensed matter.

** PHYS 446 Majors Quantum Physics.**
(3) (Fall) (3 hours lectures) (Prerequisite: PHYS 230 and PHYS 232, or PHYS 251) (Restriction: Not open to students taking or having taken PHYS 357 or PHYS 457) de Broglie waves. Bohr atom. Schroedinger equation, wave functions, observables. One dimensional potentials. Schroedinger equation in three dimensions. Angular momentum, hydrogen atom. Spin, experimental consequences.

** PHYS 449 Majors Research Project.**
(3) (Winter or Summer) (6 hours) (Prerequisite: PHYS 328, PHYS 439) A supervised research project.

** PHYS 457 Honours Quantum Physics 2.**
(3) (Winter) (3 hours lectures) (Prerequisite: PHYS 357) (Restriction: Honours students or permission of instructor) (Restriction: Not open to students who have taken PHYS 446) Angular momentum and spin operators. Operator methods in quantum mechanics. Coupling of spin and angular momenta. Variational principles and elements of time dependent perturbation theory (the Golden Rule), Solution of the Schroedinger equation in three dimensions. Applications to the hydrogen and helium atoms and to simple problems in atomic and molecular physics.

** PHYS 459D1 (3), PHYS 459D2 (3) Honours Research Thesis.**
(Fall) (6 hours) (Restriction: Honours students or permission of instructor) (Students must register for both PHYS 459D1 and PHYS 459D2) (No credit will be given for this course unless both PHYS 459D1 and PHYS 459D2 are successfully completed in consecutive terms) Honours supervised research project and thesis.

** PHYS 469 Honours Laboratory in Modern Physics 2.**
(3) (Fall) (6 hours) (Restriction: Honours students or permission of instructor) (Prerequisite: PHYS 359) (Restriction: Not open to students taking PHYS 459) Advanced level experiments in modern physics stressing quantum effects and some properties of condensed matter. Continuation of PHYS 359.

** PHYS 478 Short Research Project.**
(1) (Note: Students are expected to find an appropriate instructor for their project.) Supervised research project in physics.

** PHYS 479 Honours Research Project.**
(3) (6 hours) (Restriction: Honours students or permission of instructor. Only open to students who have completed the U2 year in a Physics program.) Honours supervised research project.

** PHYS 489 Special Project.**
(3) (Winter) (6 hours) (Restriction: Only open to students in their final year of the Joint Major in Physics and Computer Science after consultation with the adviser(s) for the program) A project incorporating aspects of both physics and computer science, under the joint supervision of the two departments. The Physics aspect may be either laboratory-based or theoretical in nature. The Computational aspect will involve the development and implementation of algorithms arising from the investigation.

** PHYS 514 General Relativity.**
(3) (Winter) (3 hours lectures) (Restriction: U3 Honours students and graduate students, or permission of the instructor.) Transition from special to general relativity. Non-Euclidian geometry. The basic laws of Physics in co-variant form, Einstein's equations. Gravitational waves; neutron stars; black holes; cosmology.

** PHYS 521 Astrophysics.**
(3) (Fall) (3 hours) (Restriction: U3 Honours students and graduate students, or permission of the instructor) A quantitative course in galactic and extragalactic astrophysics. Topics include observational techniques, stars and stellar evolution, compact objects, galaxy structure, kinematics, evolution and cosmology.

** PHYS 534 Nanoscience and Nanotechnology.**
(3) (Fall) (Restriction: U3 or graduate students in Physics, Chemistry, or Engineering, or permission of the instructor.) Topics include scanning probe microscopy, chemical self-assembly, computer modelling, and microfabrication/micromachining.

** PHYS 551 Quantum Theory.**
(3) (Fall) (3 hours lectures) (Restriction: U3 Honours students and graduate students, or permission of the instructor) General formulation, scattering theory, WKB approximation, time-dependent perturbation, theory and applications, angular momentum, relativistic wave equations.

** PHYS 557 Nuclear Physics.**
(3) (Fall) (3 hours lectures) (Restriction: U3 Honours students, graduate students, or permission of the instructor) General nuclear properties, nucleon-nucleon interaction and scattering theory, radioactivity, nuclear models, nuclear reactions.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses taught only in alternate years.

Denotes courses not offered by the Faculty of Arts or Faculty of Science in 2011-12.

Denotes courses not offered by the Faculty of Education which, if appropriate to the student’s program, may be included in the academic concentration.

Denotes courses which, because they are scheduled around practice teaching, are open only to Bachelor of Education students.
PHYS 558 Solid State Physics.
(3) (Fall) (3 hours lectures) (Restriction: U3 Honours students, graduate students, or permission of the instructor) Properties of crystals; free electron model; band structure; metals, insulators and semi-conductors; phonons; magnetism; selected additional topics in solid-state (e.g. ferroelectrics, elementary transport theory).

PHYS 559 Advanced Statistical Mechanics.
(3) (Fall) (3 hours lectures) (Restriction: U3 Honours students, graduate students, or permission of the instructor) Scattering and structure factors. Review of thermodynamics and statistical mechanics; correlation functions (static); mean field theory; critical phenomena; broken symmetry; fluctuations, roughening.

PHYS 562 Electromagnetic Theory.
(3) (Winter) (3 hours lectures) (Prerequisite(s): Graduate) U1 or U2 Honours Physics or permission of instructor.) (Restriction: U3 Honours students, graduate students, or permission of the instructor) Electrostatics, dielectrics, magnetostatics, timevarying fields, relativity, radiating systems, fields of moving charges.

PHYS 567 Particle Physics.
(3) (Winter) (3 hours lectures) (Restriction: U3 Honours students, graduate students, or permission of the instructor) Survey of elementary particles; hadrons, leptons and hadrons’ constituents (quarks). Invariance principles and conservation laws. Detectors and accelerators. Phenomenology of strong, electromagnetic and weak interactions.

PHYS 580 Introduction to String Theory.
(3) (Fall) (Prerequisite: Permission of instructor.) (Restriction: U3 Honours students, graduate students, or permission of the instructor.) Introduction to bosonic string theory, with application to fundamental theories of particle physics. Gravity and electromagnetism in extra dimensions, dynamics of classical and quantum strings, worldsheet parametrization, conserved currents, light-cone gauge, string thermodynamics and black holes, D-branes.

PSYC-Psychology
Offered by: Psychology

PSYC 100 Introduction to Psychology.
(3) (Fall) (2 lectures, 1 conference) (Restriction: Not open to students who have passed an Introductory Psychology course in CEGEP: 350-101 or 350-102 or equivalent) Introduction to the scientific study of mind and behavior, including basic concepts and methods in psychology while also highlighting the relevance of psychology to everyday life; attachment, aggression, depression, parenting and personality change.

PSYC 180 Critical Thinking: Biases and Illusions.
(3) (Winter) (Prerequisite: This course cannot be used to replace PSYC 100) The course provides students tools to become critical information consumers. Topics include: cognitive tools people use to make intuitive evaluations, factors that bias judgment, errors in calculation, and a general, conceptual introduction to statistical and methodological issues. Illustrative examples will range from medical and economic decision-making to illusions and fraud.

PSYC 199 FYS: Mind-Body Medicine.
(3) (Winter) (Limit 25 students) (Restriction: Not open to students who have taken SSMD 199. Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) Health is influenced by biological, psychological and social factors. The interaction between these determinants in the onset, course and recovery from a variety of diseases (e.g. AIDS) will be highlighted. Students will select one phase of a particular illness (e.g. remission following breast cancer treatment) and explore the related biopsychosocial factors.

PSYC 204 Introduction to Psychological Statistics.
(3) (Fall and Winter) (Restriction: Not open to students who have passed a CEGEP statistics course(s) with a minimum grade of 75%; Mathematics 201-307 or 201-337 or equivalent or the combination of Quantitative Methods 300 with Mathematics 300) (This course is a prerequisite for PSYC 305, PSYC 406, PSYC 310, PSYC 336) (You may not be able to receive credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) The statistical analysis of research data; frequency distributions; graphic representation; measures of central tendency and variability; elementary sampling theory and tests of significance.

PSYC 211 Introductory Behavioural Neuroscience.
(3) (Winter) (2 lectures) (Prerequisite: PSYC 100 or equivalent) An introduction to contemporary research on the relationship between brain and behaviour. Topics include learning, memory and cognition, brain damage and neuroplasticity, emotion and motivation, and drug addiction and brain reward circuits. Much of the evidence will be drawn from the experimental literature on research with animals.

PSYC 212 Perception.
(3) (Fall) (2 lectures; 1 conference) Perception is the organization of sensory input into a representation of the environment. Topics include: survey of sensory coding mechanisms (visual, auditory, tactile, olfactory, gustatory), object recognition, spatial localization, perceptual constancies and higher level influences.

PSYC 213 Cognition.
(3) (Winter) (2 lectures, 1 conference) (Prerequisite: One previous course in Psychology.) Where do thoughts come from? What is the nature of thought, and how does it arise in the mind and the brain? Cognition is the study of human information processing, and we will explore topics such as memory, attention, categorization, decision making, intelligence, philosophy of mind, and the mind-as computer metaphor.

PSYC 215 Social Psychology.
(3) (Fall and Winter) (3 lectures) (Restriction: Not open to students who have taken PSYC 330, MGCR 221 or SOCI 216) The course offers students an overview of the major topics in social psychology. Three levels of analysis are explored beginning with individual processes (e.g., attitudes, attribution), then interpersonal processes (e.g., attraction, communication, love) and finally social influence processes (e.g., conformity, norms, roles, reference groups).

PSYC 301 Animal Learning & Theory.
(3) (Fall) (Prerequisite(s): PSYC 211 or PSYC 213 or permission of instructor.) (Restriction: Not open to students who have taken PSYC 211 prior to the 2000-01 academic year) Contemporary and historical research and theory on animal learning approached from a behavioural, cognitive and biological perspective. Classical and instrumental conditioning, cognitive learning, and biological constraints. The status and history of North American behaviourism will be discussed and compared with cognitive and other approaches.

PSYC 302 The Psychology of Pain.
(3) (Fall) (3 lectures) (Prerequisite: any of the following: NSCI 201, PSYC 211, PSYC 212 or permission of instructor.) (Restriction: Not open to students who are taking or have taken PSYC 508.) An introduction to pain research and theory, with emphasis on the interactions of psychological, cultural and physiological factors in pain perception. The role of these factors in clinical pain and its management by pharmacological and non-pharmacological means will be discussed.

PSYC 304 Child Development.
(3) (Fall) (2 lectures, 1 conference) (Prerequisite: two courses from PSYC 211, PSYC 212, PSYC 213, and PSYC 215 or permission of the instructor) (This course is a prerequisite for PSYC 412, PSYC 413, PSYC 414, PSYC 416) Psychology of children, covering critical issues, theories, biological underpinnings, experimental methods, and findings in perceptual, cognitive, language, emotional, and social development.

PSYC 305 Statistics for Experimental Design.
(3) (Fall and Winter) (Prerequisite: PSYC 204 or equivalent) (This course is required of all students who propose to enter an Honours or Major program in Psychology) (You may not be able to receive credit for this course and other statistic courses. Be sure to check the Course Overlap section under Faculty Degree Requirements in the Arts or Science section of the Calendar.) The statistical analysis of research data; frequency distributions; graphic representation; measures of central tendency and variability; elementary sampling theory and tests of significance.
Sensation and perceptual organization of sound. Response to sound. Higher-level mental principles including PSYC 213 or permission of the instructor. Listener's (3) (3 lecture hours per week.) (Prerequisites: PSYC 212 or PSYC 329 Introduction to Auditory Cognition.

Regulation, physical inactivity, and sexual risk behaviour. Disorders. Behaviour change strategies for smoking, weight hypertension, coronary heart disease, cancer, and immunological disorders. Physiological bases of learning and memory. Ongoing issues in research on goals and social cognition.

Professional Practice (Stage) in Dietetics involving special prerequisites. Indicators that departmental approval/permission must be obtained by a student prior to registration.

Denotes courses not available as Education electives.

Denotes courses with limited enrolment.
PSYC 352 Cognitive Psychology Laboratory. (3) (Winter) (1 hour lecture, weekly lab) (Prerequisite: PSYC 213 and PSYC 305.) (Corequisite: PSYC 305 or equivalent.) (Restriction: Requires departmental approval.) (Students will be admitted on the basis of a written application form available from the Department (Room N7/9). Applications must be submitted by first day of class) Introduction to research methods and experimental techniques in cognitive psychology for exploring topics such as attention, memory, categorization, reasoning, and language processing.

PSYC 353 Laboratory in Human Perception. (3) (Winter) (1 hour lecture plus 3 hour lab) (Prerequisites: PSYC 212, U2 level or above. Requires departmental approval.) (Students will be admitted on the basis of a written application form available from the Department (Room N7/9). Applications must be submitted by August 15) Students will be introduced to standard psychophysical procedures and data analysis techniques, and will have the opportunity to design and carry out their own experiments. Research topics include: visual acuity, form and motion perception, and visual search. Evaluation based on individually written reports on lab experiments.

PSYC 365 Cognitive Neuroscience of Attention. (3) This course has been renamed to PSYC 506. Please see PSYC 506 for course information.

PSYC 380D1 (4.5), PSYC 380D2 (4.5) Honours Research Project Seminar. (3 hour seminar) (Restriction: For U2 honours students only. Requires departmental approval.) (Students must register for both PSYC 380D1 and PSYC 380D2.) (No credit will be given for this course unless both PSYC 380D1 and PSYC 380D2 are successfully completed in consecutive terms) First laboratory research project.

PSYC 395 Psychology Research Project 1. (6) (Fall or Winter) (Prerequisites: 24 credits of the psychology program, PSYC 305 or equivalent and CGPA above 3.00.) (Restriction: Requires departmental approval.) (Registration is by special arrangement with Psychology staff, and project proposals must be approved by the Department before registration.) (For more information see the Psychology Department website.) Supervised research project.

PSYC 396 Undergraduate Research Project. (3) (Fall or Winter) (Restrictions: This course cannot be taken under the S/U option. Departmental permission required. Students cannot be supervised by the same instructor for two 396 Science courses. Open to students in programs offered by the Faculty of Science only.) (Note: Enrolment may be limited. Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects. Some projects may be accessible to students in other disciplines. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.) Independent research project with a final written report.

PSYC 403 Modern Psychology in Historical Perspective. (3) (Fall) (2 lectures) A survey of the scientific and ideological influences on psychology from its philosophical beginnings through the period of the schools to its modern situation.

PSYC 406 Psychological Tests. (3) (Winter) (2 lectures) (Prerequisite: PSYC 204 or equivalent) An introduction to the theory and practice of psychological measurement in health, educational, clinical and industrial/organizational settings. Attention to procedures for developing and validating tests and questionnaires. Techniques include: intelligence tests, projective tests, questionnaires, structured interviews, rating scales, and behavioural/performance tests.

PSYC 408 Principles of Cognitive Behaviour Therapy. (3) (2 lectures) (Prerequisites: PSYC 337 and PSYC 211 or permission of instructor) An introduction to the theory, research and practice of cognitive behaviour therapy. The experimental approach to understanding human behaviour is used to follow basic principles of learning and their clinical application. Certain psychiatric disorders such as alcoholism and depression are highlighted to illustrate how a behaviour therapist conceptualizes problems and formulates treatments.

PSYC 409 Positive Psychology. (3) (Prerequisites: PSYC 215 Social Psychology) (Note: Permission from instructor is required.) Didactic instruction and experiential learning in its coverage of three issues central to this field: positive emotions, positive individual traits, and positive institutions. Topics covered include: sensory savoring, expressing gratitude, optimism, identifying and building strengths, kindness, and meaning.

PSYC 410 Special Topics in Neuropsychology. (3) (Fall) (2 lectures) (Prerequisites: PSYC 311 or PSYC 308. Knowledge of basic neuropsychology at the level covered in PSYC 311 is assumed) Developments in cognitive neuroscience and cognitive neuropsychiatry via readings from primary sources. Topics include: the neural bases of memory, emotion, social cognition and neuropsychiatric diseases. Integrating knowledge from studies in clinical populations and functional neuroimaging studies.

PSYC 412 Developmental Psychopathology. (3) (Winter) (2 lectures: 1 conference) (Corequisite: PSYC 304 or PSYC 337 or permission of instructor) Introduction to the field of behavior disorders of childhood and adolescence, including core issues, theoretical and methodological underpinnings, descriptions and discussions of many disorders, clinical and research data, and treatment approaches. Three major assumptions will be woven through the course.

PSYC 413 Cognitive Development. (3) (Fall) (3 hours) (Prerequisite: PSYC 304 or PSYC 213 or equivalent) In-depth exploration of cognitive development in infants and children including knowledge representation and processing, conceptual development, language development, and theories and principles of cognitive development.

PSYC 414 Social Development. (3) (Fall) (Prerequisites: PSYC 304 and PSYC 305) Advanced study of the development of social behaviour and social cognition in children. Topics include: socialization, attachment, aggression, exploration, role taking, communication, family and peer relations, self and person perception. The development of these social processes within the framework of three general theories of development: behaviour genetics, learning, and cognitive-developmental.

PSYC 427 Sensorimotor Behaviour. (3) (Winter) (2 lectures) (Prerequisite: PSYC 308 or permission of instructor) A systematic examination of the sensorimotor system, drawing on models and data from both behavioural and physiological studies. Topics include: cortical motor areas, cerebellum, basal ganglia, spinal mechanisms, motor unit properties and force production, proprioception, muscle properties.

PSYC 429 Health Psychology. (3) This course has been renamed to PSYC 328. Please see PSYC 328 for course information.

PSYC 436 Human Sexuality and its Problems. (3) (Fall) (Prerequisite: either PSYC 337 or permission of instructor) This course will deal with typical sexual behavior and its variations. Topics will include the history of sex research, the sexual response cycle, sexual dysfunction, gender identity, sexual orientation, etc. Current research and theory will be emphasized.

PSYC 444 Sleep Mechanisms and Behaviour. (3) (Fall) (Prerequisites: One of PSYC 211, NSCI 201, PHGY 209 AND one of PSYC 311, PSYC 317, PSYC 318, PSYC 342 or permission of instructor.) This course covers basic biological mechanisms, possible functions and behavioral aspects of sleep. Additional topics include: disorders of sleep, their effects on behaviour and cognition,
and treatment approaches; as well as medical, neurological and psychiatric disorders, and drugs, that affect sleep.

PSYC 450D1 (4.5), PSYC 450D2 (4.5) Research Project and Seminar. (Prerequisites: PSYC 204, PSYC 305.) (Restriction: Requires departmental approval.) (Restriction: Only for Major or special students in U3 who intend to proceed to graduate school) (Students will be admitted on the basis of a written application on forms available from the Department (Room N7/9). Applications must be submitted by August 1st.) (Students must register for both PSYC 450D1 and PSYC 450D2.) (No credit will be given for this course unless both PSYC 450D1 and PSYC 450D2 are successfully completed in consecutive terms) Under supervision of an advisor approved by the Department, students design and carry out a research project. Students report their research in seminars throughout the year and in a final written report.

PSYC 451 Human Factors Research and Techniques. (3) (Fall) (2 lectures; 1 lab) (Prerequisites: PSYC 204, PSYC 211, PSYC 212, PSYC 213, PSYC 215 and PSYC 305 or permission of instructor) The application of psychology to the analysis and design of systems and products to increase efficiency and reduce the probability and risk of human error. Topics include: workload and vigilance, control-display relationships, task analysis, and workstation design.

PSYC 470 Memory and Brain. (3) (Winter) (3 hour lectures) (Prerequisites: PSYC 308 and PSYC 318 or PHGY 311 or BIOL 306) Memory systems are studied with an emphasis on the neural computations that occur at various stages of the processing stream, focusing on the hippocampus, amygdala, basal ganglia, cerebellum and cortex. The data reviewed is obtained from human, non-human primates and rodents, with single unit recording, neuroimaging and brain damage subjects.

PSYC 471 Human Motivation. (3) (Fall) (3 hours lectures) (Prerequisite: PSYC 215) The course is designed to explore questions such as “Why do people often fail to reach their personal goals?” Current goal-based and need-based theories of human motivation will be reviewed. The instructor will highlight the relevance of motivation research to the domains of education, sports and management.

PSYC 473 Social Cognition and the Self. (3) (Winter) (2 lectures) (Prerequisites: PSYC 215 and PSYC 333 or PSYC 331 or PSYC 474) (Restriction: Not open to students who have taken PSYC 411) This course examines the social psychological literature emphasizing a) social cognition - how people think about and make sense of their social experiences; and b) self theory - how people create and maintain a sense of identity. These frameworks will be applied to social psychological topics including close relationships, attitudes and self-esteem.

PSYC 474 Interpersonal Relationships. (3) (Winter) (Prerequisite: PSYC 215, PSYC 204, and PSYC 333 or permission of instructor) Psychological science approach to interpersonal relationships. Organized in terms of the development of relationships, focusing first on impression formation as a platform for the development of relationships. Then we focus on close relationships, examining interpersonal constructs (intimacy, trust, commitment) and reconsidering social cognitive constructs (attributions, schemas) in an interpersonal context.

PSYC 482 Advanced Honours Seminar. (3) (Fall) (2 lectures, plus student presentations, debates, and discussions.) (Restrictions: Not open to students who have taken 204-480D. For Honours students only.) Ethical issues in scientific and clinical psychology, scientific psychology and social policy; and other issues.

PSYC 483 Seminar in Experimental Psychopathology. (3) (Winter) (2 lectures) (Prerequisite: PSYC 305 or equivalent.) (Restriction: For U3 students only.) (Note: Students will be admitted based on written application. Forms available from the Department (Room N7/9). Applications must be submitted by August 1st) Design of experiments in psychopathology, interviewing techniques and clinical diagnosis.

PSYC 488D1 (1.5), PSYC 488D2 (1.5) Special Topics Seminar. (Restriction: Requires departmental approval.) (Students must register for both PSYC 488D1 and PSYC 488D2.) (No credit will be given for this course unless both PSYC 488D1 and PSYC 488D2 are successfully completed in consecutive terms.) (Note: A written proposal detailing the plans for the seminar must be approved by the student and the professor and must be approved by the undergraduate program director before registering for this course. This proposal must be received by the Director well before the beginning of the term. Consult the departmental handbook for additional information.) Topics in Psychology.

PSYC 491D1 (3), PSYC 491D2 (3) Advanced Study: Behavioural Disorders. (1-2 hours lecture or tutorial per week plus a field experience requirement) (Prerequisites: PSYC 337 and PSYC 338. Departmental permission required.) (Students will be admitted on the basis of a written application on forms available from the Department (Room N7/9). Applications must be submitted by August 1st) (Students must register for both PSYC 491D1 and PSYC 491D2.) (No credit will be given for this course unless both PSYC 491D1 and PSYC 491D2 are successfully completed in consecutive terms) A critical examination of topics in abnormal and clinical psychology. Emphasis will be on analysis of theoretical positions and empirical findings as they relate to both etiology and treatment.

PSYC 492 Special Topics Seminar 1. (3) (Fall or Winter) (Restriction: U3 students. Requires departmental approval.) These seminars are offered by special arrangement between interested Psychology staff and students. Note: A written proposal detailing the plans for the seminar must be approved by the Department Curriculum Committee before the student is permitted to register for this course. This proposal must be received by the Departmental Curriculum Committee well before the beginning of the term for which the seminar is proposed. Consult the Departmental Handbook for additional information.

PSYC 493 Special Topics Seminar 2. (3) (Fall or Winter) (Restriction: U3 students. Requires departmental approval.) These seminars are offered by special arrangement between interested Psychology staff and students. Note: A written proposal detailing the plans for the seminar must be approved by the Department Curriculum Committee before the student is permitted to register for this course. This proposal must be received by the Departmental Curriculum Committee well before the beginning of the term for which the seminar is proposed. Consult the Departmental Handbook for additional information.

PSYC 494D1 (4.5), PSYC 494D2 (4.5) Psychology Research Project. (Prerequisites: 30 credits of the psychology program, PSYC 305 or equivalent and CGPA above 3.00.) (Restrictions: Requires departmental approval. Registration is by special arrangement with Psychology staff, and project proposals must be approved by the Department before registration.) (For more information see the Psychology Department website.) (Students must register for both PSYC 494D1 and PSYC 494D2.) (No credit will be given for this course unless both PSYC 494D1 and PSYC 494D2 are successfully completed in consecutive terms.) Supervised research project.
PSYC 495 Psychology Research Project 2.
(6) (Fall or Winter) (Prerequisite: PSYC 395 or equivalent.) (Restriction: Registration is by special arrangement with Psychology staff, and project proposals must be approved by the Department before registration.) (For more information see the Psychology Department website.) Supervised research project.

PSYC 496 Senior Honours Research 1.
(6) (Prerequisite: PSYC 380D1/PSYC 380D2) Second laboratory research project.

PSYC 497 Senior Honours Research 2.
(6) (Prerequisite: PSYC 380D1/PSYC 380D2.) (Corequisite: PSYC 496) Third laboratory research project.

PSYC 498D1 (4.5), PSYC 498D2 (4.5) Senior Honours Research.
(Students must register for both PSYC 498D1 and PSYC 498D2.) (No credit will be given for this course unless both PSYC 498D1 and PSYC 498D2 are successfully completed in consecutive terms) (Prerequisite: PSYC 380D1/PSYC 380D2) Second two-term laboratory research project.

PSYC 499 Reading Project.
(1) (Fall or Winter) (Prerequisites: PSYC 211, PSYC 212, PSYC 214, PSYC 215 and PSYC 305) (Restriction: Open only to U3 students) Under the guidance of an instructor with the relevant expertise, the student explores the literature on a special topic.

PSYC 501 Auditory Perception.
(3) (Fall) (2 lectures) (Prerequisite: Undergraduate courses in perception or sound or neuroscience and permission of instructor.) (Restrictions: For U3 and graduate students.) Auditory perception and its neural correlates, covering acoustics, auditory anatomy and neurobiology, and the neural correlates of perception of loudness, pitch, spatial location, frequency specificity, musical, speech sounds, and segregation of component sounds in multi-sound environments in both humans and animals.

● PSYC 502 Psychoneuroendocrinology.
(3) (Fall) (Prerequisite: One of PSYC 308, PSYC 311, PSYC 318, PSYC 342, or permission of the instructor.) Neuroendocrinological mechanisms of action that underlie specific behaviors and their disorders. Hormones and cognitive functioning, sexual functioning, aggression, mood and stress in humans and will focus on methods of hypothesis-testing in these areas.

● PSYC 504 Computational Modelling, Reasoning.
(3) PSYC 506 Cognitive Neuroscience of Attention.
(3) (Fall) (Prerequisites: PSYC 213 and PSYC 311, and one of PSYC 305 OR BIOL 373, or permission of instructor.) (Restrictions: Open only to Psychology and Cognitive Science students. Not open to students who have taken PSYC 365.) An introduction to cognitive properties and neural mechanisms of human attention. The material will include an overview of the history of attention research, contemporary theories of attention, the varieties of attention, behavioral and neuroimaging experimental methods, the nature of attentional dysfunctions, and the links between attention and other cognitive functions including memory and consciousness.

● PSYC 507 Emotions, Stress, and Illness.
(3) (Prerequisites: PSYC 337, PSYC 429 and permission of the instructor.) Emotional effects on peripheral physiology and the development, course, and outcome of physical disorders such as high blood pressure, coronary artery disease, ulcers, asthma, and cancer.

PSYC 509 Diverse Clinical Populations.
(3) (Fall) (Prerequisites: PSYC 204 and PSYC 337) (Restriction: Restricted to graduate students in Psychology and to U3 students enrolled in one of the following programs: BSc; Major in Psychology, BSc; Honours in Psychology, BA; Major Concentration in Psychology, BA; Honours in Psychology, BA; Joint Honours - Psychology Component, or by permission of the instructor.) Poverty is a significant risk factor for psychological disorder. In this class, we will examine critically research focused on this association, with an emphasis on (a) mechanisms underlying the link between poverty and psychopathology, and (b) development and dissemination of evidence-based treatments for individuals living in poverty. Particular attention will be paid to the research methodologies used to address these questions.

● PSYC 512 Advanced Personality Seminar.
(3) (Prerequisite: PSYC 332 or permission of instructor.) (Restrictions: Open to psychology students. Enrolment limited. Students must be in U3 or above. Departmental permission required.) Advanced topics in personality. Focus on power, status, and dominance and how these are manifested in social behavior. Dominance in nonhuman species, biological substrates of dominance, relations of status and dominance to social cognition, affect, and health; gender, role and cultural influences on dominance.

PSYC 514 Neurobiology of Learning and Memory.
(3) (Fall) (Prerequisite(s): BIOL 306 or PHGY 311 or NSCI 201 or NEUR 310 or permission of the instructor) (Restriction(s): Not open to students who have taken or are taking BIOL 531 or BIOL 514.) Properties of nerve cells that are responsible for learning and memory. Recent advances in the understanding of neurophysiological, biochemical and structural processes relevant to neural plasticity. Emphasis on a few selected model systems involving both vertebrate and invertebrate animals.

PSYC 522 Neurochemistry and Behaviour.
(3) (Winter) (2 lectures) (Prerequisites: any two of the following NSCI 201, PSYC 311, PSYC 318, ANAT 321, PHGY 314, BIOL 306) (Restrictions: Not open to students who have taken or are taking PHAR 562) Anatomical, biochemical and physiological aspects of neurotransmitter systems in the brain, current theories of the function of these systems in normal and abnormal behaviour, and the actions of psychotropic drugs.

PSYC 526 Advances in Visual Perception.
(3) (Fall) (2 lectures) We examine in detail the structure of the visual system, and its function as reflected in the perceptual abilities and behaviour of the organism. Parallels are also drawn with other sensory systems to demonstrate general principles of sensory coding.

● PSYC 528 Vulnerability to Depression.
(3) (Prerequisite: PSYC 357 or PSYC 412 or permission of instructor. Requires departmental approval.) This course will examine in depth cognitive, behavioral, psychodynamic, biological, and developmental psychopathology models of the etiology of depression. Within each theoretical perspective, core issues, theoretical and methodological underpinnings, and research data will be examined.

PSYC 529 Music Cognition.
(3) (Winter) (Prerequisites: PSYC 212, PSYC 213, PSYC 204 (or equivalent)) Interdisciplinary study of music cognition and perception, with an emphasis on cognitive and experimental approaches. Topics include: psychoacoustics, music memory, tonality, neuropsychology of music, performance, talent and expertise, and developmental aspects.

● PSYC 530 Applied Topics in Deafness.
(3) (Fall) (Prerequisite: PSYC 340 or PSYC 316 or equivalent. Permission of instructor) Covers fundamental topics in deafness (sensory, perceptual, cognitive, social, linguistic, education and health issues) from an applied psychological perspective. Lectures and seminar presentations plus field work involving ASL/LSQ.

● PSYC 531 Structural Equation Models.
(3) (Fall) (one 2-hour lecture plus one lab) (Prerequisite: PSYC 536, PSYC 651, or equivalent, or permission of instructor.) The course introduces basic concepts underlying structural equation models (SEM). SEM, which combines regression analysis and factor analysis, are quite useful and are currently very popular in analyzing data that arise in social, developmental and clinical psychology. The students are expected to get first-hand experiences in fitting SEM, and learn how to interpret and report the results from SEM.
PSYC 532 Cognitive Science.
(3) (Fall) (Prerequisites: Admission to the Cognitive Science Minor or permission of instructor. Students should ideally have some cognitive science background and at least two disciplines.) The multi-disciplinary study of intelligent systems. Problems in vision, memory, categorization, choice, problem solving, cognitive development, syntax, language acquisition, and rationality. Rule-based and connectionist approaches.

PSYC 533 International Health Psychology.
(3) (Fall) (Prerequisites: PSYC 305 and PSYC 215 or PSYC 429 or PSYC 304 or ANTH 227.) (Restriction: Departmental permission required.) The focus will be on health and illness in developing countries, in particular, on health problems (malnutrition, alcohol abuse, mental illness, family planning, and HIV) where psychosocial factors play a large role in the problem and the solution. Attempted solutions based on community participation, health education, non-governmental and international agencies will be discussed.

PSYC 535 Advanced Topics in Social Psychology.
(3) (Winter) (Prerequisites: PSYC 215; and PSYC 333 or PSYC 351 or PSYC 380.) (Restriction: Departmental permission required.) (Restriction: Graduate Students, enrollment limited) Classic and contemporary readings in a specific content area within social psychology will be assigned in order to examine the sub-area in depth. The focus will vary depending upon the specialty area of the instructor. These areas include interpersonal relationships, intergroup relations, the self, and social cognition.

PSYC 536 Correlational Techniques.
(3) (Winter) (Prerequisites: PSYC 204 and PSYC 305 or their equivalents, and MATH 133 or equivalent.) (Restriction: Requires departmental approval.) The statistical analysis of relations among a number of variables in situations common in psychology and other fields. Methods include regression analysis, principal components analysis, and other techniques for modelling the structure of correlation matrices.

PSYC 537 Advanced Seminar in Psychology of Language.
(3) (Fall) (Prerequisites: PSYC 213 and one of: PSYC 340, LING 200, or LING 201.) (Note: Prior background in the psychology of language, cognitive psychology, or linguistics is essential.) Topics may include: the neural basis of language, evolutionary approaches to language, pragmatics and figurative language processing, disordered language processing, models of spoken word recognition.

PSYC 541 Multilevel Modelling.
(3) (Fall) (Prerequisite: PSYC 305 or equivalent or permission of the instructor.) (Limited enrolment.) Basic concepts of multilevel linear and nonlinear models and applying these methods to empirical data.

PSYC 545 Topics in Language Acquisition.
(3) (Fall) Psychological mechanisms and theories of first language acquisition in infancy and early childhood. Topics such as: infant speech perception, acquisition of grammar, word learning, pidgin and Creole languages, critical and sensitive periods, genetic and evolutionary bases of language.

PSYC 561 Methods: Developmental Psycholinguistics.
(3) (Winter) (3 hour lectures) (Prerequisites: PSYC 340 and LING 355 or equivalent or permission of instructor.) Approaches and methods used in investigations of the development of language and communication. A case study approach, observational-correlational approach versus experimental-manipulative approach, cross sectional design versus longitudinal design.

PSYC 562 Measurement of Psychological Processes.
(3) (Fall) (Restriction: Not open to students who have taken PSYC 336.) The properties of measurements and techniques for the measurement of psychophysical variables such as brightness and loudness and of attitudinal variables such as similarity, preference, and utility. Data analysis tools of value to experimenters. Emphasis on current problems in experimental psychology.

PSYT-Psychiatry
Offered by: Psychiatry

PSYT 199 FYS: Mental Illness and the Brain.
(3) (1 hour lecture and 2 hours seminar weekly) (Restriction: Open only to newly admitted students in U0 or U1, who may take only one FYS. Students who register for more than one will be obliged to withdraw from all but one of them.) (Maximum 25. No prerequisites) This course will introduce the student to the fundamentals of neuroscience, and then use these principles to illustrate recent advances made on the biological causes of, and treatments for, mental disorders with a strong biological component: schizophrenia, depression, mania, anxiety disorders, obsessive-compulsive disorder, Alzheimer's and Parkinson's diseases and alcohol and drug abuse.

PSYT 301 Issues in Drug Dependence.
(3) (Winter) (3 hours) (Prerequisites: PHGY 201 or PHGY 209 or PHGY 210 or PSYC 100 or BIOL 201 or permission of instructor) The phenomenology and epidemiology of the use and abuse of alcohol, nicotine, opiates, stimulants, sedatives and psychotogenic agents are discussed in relation to current theoretical and experimental issues. The perspective is multidisciplinary and the intention is to develop an understanding of the nature of the issues surrounding drug dependence.

PSYT 500 Advances: Neurobiology of Mental Disorders.
(3) (Winter) (3 hours) (Prerequisite (Undergraduate): BIOC 212 and BIOC 311, or BIOC 312, or BIOL 200 and BIOL 201, or PHGY 311, or PSYC 308 and an upper-level biological science course with permission of the instructors, or equivalent. Basic knowledge of cellular and molecular biology is required.) (Restriction: Open to U3 and graduate students only.) (Restriction: Graduate Studies: strongly recommended for M.Sc. students in Psychiatry.) Current theories on the neurobiological basis of most well known mental disorders (e.g. schizophrenia, depression, anxiety, dementia). Methods and strategies in research on genetic, physiological and biochemical factors in mental illness will be discussed. Discussion will also focus on the rationale for present treatment approaches and on promising new approaches.

PSYT 502 Brain Evolution and Psychiatry.
(3) (Fall) (Prerequisites: BIOL 115 or equivalent as authorized by instructor) The course will focus on the transcendent importance of evolution of nervous systems for normal and pathological behaviour. Studies of allomeric brain growth and recent evolutionary theories of brain organization as they relate to normal and abnormal behaviour will be emphasized.

PSYT 503 Mental Health Services and Policy.
(3) (Note: Enrolment is limited to 14 students. The course is given in English, papers can be submitted in English or French.) Analysis of the mental health system and its best practices.

PSYT 504 Issues in Forensic Mental Health.
(3) (Prerequisite: Special permission of instructor.) (Note: Enrolment limited to 30 students. The course will be taught in English, papers can be submitted in English or French.) The course will review current forensic mental health issues at the various stages the criminal justice process, clinical and community participation, health education, non-governmental and international agencies will be discussed. Discussion will also focus on the rationale for present treatment approaches and on promising new approaches.

Always check at www.mcgill.ca/study/ for the most up-to-date information on whether a course is offered.

Denotes courses taught only in alternate years.
‡ Professional Practice (Stage) in Dietetics involving special prerequisites.
● Indicates that departmental approval/permission must be obtained by a student prior to registration.
† Denotes courses not available as Education electives.
❖ Denotes courses with limited enrolment.

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behavioural specificities and vulnerabilities of special populations of offenders. It will also review risk factors for aggressive behaviour and criminality, assessment methods as well as current debates in the field of forensic mental health.

**PSYT 505 Neurobiology of Schizophrenia.**  
(3) (Office hours: After class or by appointment)  
(Prerequisites: PSYC 308, BIOL 306, PHGY 314 or permission of instructor)  
(Restriction: Open to U3 and M.Sc. students.)  
Multidisciplinary issues on pathogenesis and pathophysiology of schizophrenia from molecular genetics to cognitive psychology, including current theories of the disorder based on up-to-date evidence from recent research.

**PSYT 515 Advanced Studies in Addiction.**  
(3) (Prerequisite: PSYT 301 or permission from one of the instructors.)  
(Restrictions: Priority will be given to graduate students registered in Psychiatry, Psychology or Neuroscience graduate programs. Open to undergraduates who have completed PSYT 301 or an equivalent course. Undergraduates must obtain permission of the instructors before registration. Not open to students who have taken PSYT 615.)  
Critical assessment of research tools, reported data, and theoretical perspectives on drug addiction, with an emphasis on multi-factorial and inter-disciplinary approaches.

**REDM-Redpath Museum**  
Offered by: Redpath Museum

**REDM 396 Undergraduate Research Project.**  
(3) (Restrictions: This course cannot be taken under the S/U option. Departmental permission required. Students cannot be supervised by the same instructor for two 396 Science courses. Open to students in programs offered by the Faculty of Science only.)  
(Note: Enrolment may be limited. Students are advised to start the application process well before the start of the term and to plan for an alternative course in the case that no suitable project is available. Individual projects may be suggested each term which may have project-specific prerequisites. Students may also approach professors to devise their own projects. Some projects may be accessible to students in other disciplines. See http://www.mcgill.ca/science/ours for more information about available projects and application forms and procedures.)  
Independent research project with a final written report.

**REDM 399 Science Writing.**  
(1) (Prerequisite: Completion of U1 and permission of the instructor.)  
(Note: Permission given to students concurrently enrolled in Research Project course. To obtain permission, students should email the instructor, Linda.Cooper@mcgill.ca)  
Techniques for effective science writing, including elements of reader-based scientific manuscripts and Abstracts. Emphasis on how to edit texts to make them logical, precise, and clear.

**REDM 400 Science and Museums.**  
(3) (Winter: Course consists of lectures, practical labs, field trips and individual term-projects.)  
(Prerequisites: A 200- or 300-level course that deals with diversity of specimens or objects relevant to Museum-based research and collections. e.g. BIOL 215, BIOL 305, EPSC 210, EPSC 233, ANTH 208, ANTH 310, PLNT 358, WILD 212, WILD 313, or permission of instructor.)  
Natural history museums and their collections, how collections are created and maintained and how collections are used in scientific research. Context of natural history museums, collections-based research and curatorial methods.

**REDM 405 Natural History of East Africa.**  
(3) (Winter) (Course consists of field exercises, lectures, seminars and discussions.)  
(Corequisites: ANTH/GEOG 451 and NRSC/BIOL 451)  
(Restrictions: Not open to students who have taken or are taking NRSC 300 or GEOG 300 or NRSC405. Open only to African Field Study Semester students during the year of participation in the field.)  
Integrated study of African landforms, geologic history, climate, environments, biota, water resources and human influences, fostering a thorough understanding of the East African landscape and its inhabitants. Lectures, discussions on selected topics, use of museum resources and field studies will develop powers of observation, identification and enquiry.

**REDM 410 Writing Research Articles.**  
(3) (Prerequisite: 24 credits of 200/300-level Science courses.)  
(Restriction: This is an advanced course and permission of the instructor is required. To obtain permission, students should email the instructor, linda.cooper@mcgill.ca. Not open to students who are taking or have taken REDM 399.)  
Students will learn about the scientific article, publishing in the sciences, and the benefits of writing for a wide audience. This course focuses on how to structure the Abstract, as well as the Introduction and Discussion section of the full manuscript, and on editing techniques.